TIKHOMIROV, V.V.; VOSKRESENSKAYA, N.A.

Commemorative dates for October-December, 1962. Sov.geol. 5 no.11:125-130 N '62. (MIRA 15:12)

1. Geologicheskiy institut AN SSSR.
(Anniversaries)

TIKHOMIROV, V.V.; VOSKRESENSKAYA, N.A.

Commemorative dates in July-September, 1963. Sov. geol. 6 no.7:139-153 Jl '63. (MIRA 16:8)

1. Geologicheskiy institut AN SSSR.

TIKHOMIROV, V.V.; VOSKRESENSKAYA, N.A.

Memorable dates for October, 1963. Sov. geol. 6 no.10: 129-133 O '63. (MIRA 17:1)

1. Geologicheskiy institut AN SSSR.

TIKHOMIROV, V.V.; VOSKRESENSKAYA, N.A.

Commemorative dates in January-March, 1962. Sov.geol. 5 no.1:170-175 Ja '62. (MIRA 15:2)

1. Geologicheskiy institut AN SSSR.
(Anniversaries)

TIKHOMIROV, V.V.; VOSKRESENSKAYA, N.A.

Commemorative data in April-June, 1962. Sov.geol. 5 no.4:130-137 Ap '62. (MIRA 15:4)

1. Geologicheskiy institut AN SSSR.
(Anniversaries)

TIKHOMIROV, V.V.; VOSKRESENSKAYA, N.A.

Memorable dates for April to June 1961. Sov. geol. 4 no.4:140-145 Ap '61. (MIRA 14:5)

1. Geologicheskiy institut AN SSSR.
(Anniversaries)

TIKHOMIROV, V.V.; VOSKRESENSKAYA, N.A.

Commemorative data in October-December, 1961. Review No.32. (MIRA 14:11)
Sov.geol. 4 no.11:165-170 N '61.

1. Geologicheskiy institut AN SSSR.
(Anniversaries)

TIKHOMIROV, V.V.; VOSKRESENSKAYA, N.A.

Commemorative dates in April-June, 1963. Sov. geol. 6 no.5: 139-145 My '63. (MIRA 16:6)

1. Geologicheskiy institut AN SSSR.
(Anniversaries)

NALIVKIN, D.V., glav. red.; BELYAYEVSKIY, N.A., zam. glav. red.; TIKHOMIROV, V.V., zam. glav. red.; ASSOVSKIY, A.N., red.; MEL'NIKOV, O.D., red.; PEYVE, A.V., red.; YANSHIN, A.L., red.; VOSKRESENSKAYA, N.A., red.; KALYUZHNYY, Vl.A., otv. red. vyp.; NATOCHIY, P.A., red. vyp.; MEL'NIK, A.F., red.izd-va; LISOVETS, A.M., tekhn. red.

[Study of the geology of the U.S.S.R.] Geologicheskaia izuchennost' SSSR. Kiev, Izd-vo AN Ukr.SSR. Vol.31. [Ukrainian S.S.R. (western provinces); period 1951-1955] Ukrainskaia SSR (zapadnye oblasti); period 1951-1955. No.1. [Published studies and reviews] Opublikovannye raboty i obzornye glavy. 1963. 173 p. Vol.32. [Central and eastern provinces of the Ukrainian SSR; period 1951-1955] Ukrainskaia SSR (tsentral'nye i vostochnye oblasti period 1951-1955. No.1. [Published studies] Opublikovannye raboty. 1963. 326 p. (MIRA 16:10)

(Ukraine--Geology)

TIKHOMIROV, V.V.; VOSKRESENSKAYA, N.A.

Branch conferences of editorial boards on the volumes of "Current state of the study of geology of the U.S.S.R. (the Caucasus and southwestern part of the European U.S.S.R.). Sov. geol. 3 no.3:150-151 Mr '60. (MIRA 13:11)

1. Geologicheskiy institut AN SSSR.
(Geology)

PLAKSIN, I.N.; ASTAF'YEVA, A.V.; VOSKRESENSKAYA, M.M.; SHABARIN, S.K.

Chlorination as a method to extract platinum and palladium from oxidized copper-nickel ores. Izv. vys. ucheb. zav.; tsvet. met. 3 no. 6:95-103 '60. (MIRA 14:1)

1. Krasnoyarskiy institut tsvetnykh metallov. Kafedra metallurgii blagorodnykh metallov.
(Chlorination) (Nonferrous metals--Metallurgy)

TIKHOMIROV, V.V.; VOSKRESENSKAYA, N.A.

Commemorative dates in January-March, 1964. Sov. geol. 7 no.4:133-139 Ap'64. (MIRA 17:5)

1. Geologicheskiy institut AN SSSR.

TIKHOMIROV, V.V., VOSKRESENSKAYA, N.A.

Memorable dates for April-September, 1960. Review no.27. Sov. geol. 3 no.7:124-128 Jl '60. (MIRA 13:8)

1. Geologicheskiy institut AN SSSR.
(Anniversaries)

TIKHOMIROV, V.V.; VOSKRESENSKAYA, N.A.

Memorable dates for January-March 1960. Survey no. 26. Sov. geol. 3 no.4:136-139 Ap '60. (MIRA 13:11)

1. Geologicheskiy institut AN SSSR.
(Anniversaries)

TIKHOMIROV, V.V.; VOSKRESENSKAYA, N.A.

Memorable dates for July-September, 1958. Sov. geol. 4 no.8: 138-145 Ag '61. (MIRA 16:7)

1. Geologicheskiy institut AN SSSR.
(Anniversaries)

TIKHOMIROV, V.V.; VOSKRESENSKAYA, N.A.

Commemorative dates in April-June 1964. Sov. geol. 7 no.9:137-142 S '64. (MIRA 17:10)

1. Geologicheskiy institut AN SSSR.

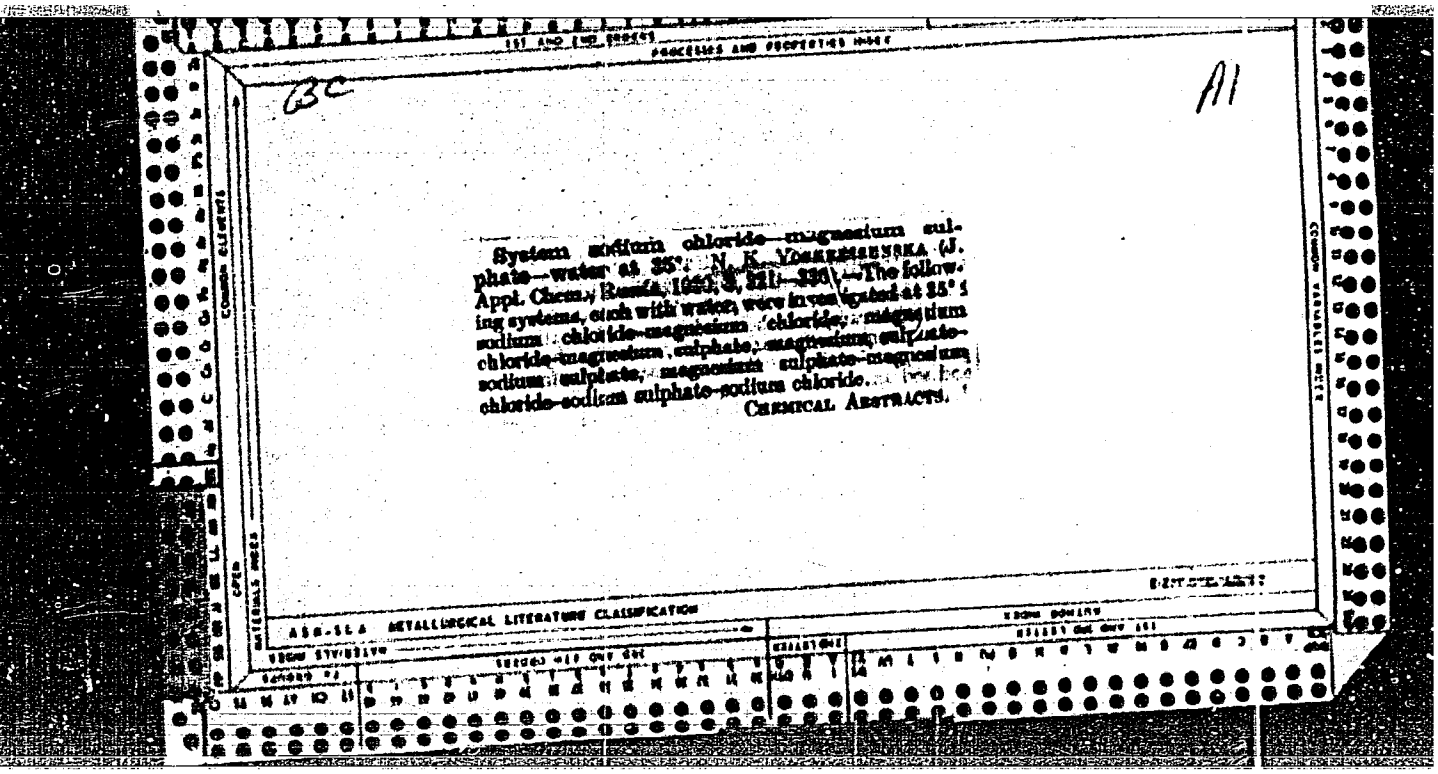
TIKHOMIROV, V.V.; VOSKRESENSKAYA, N.A.

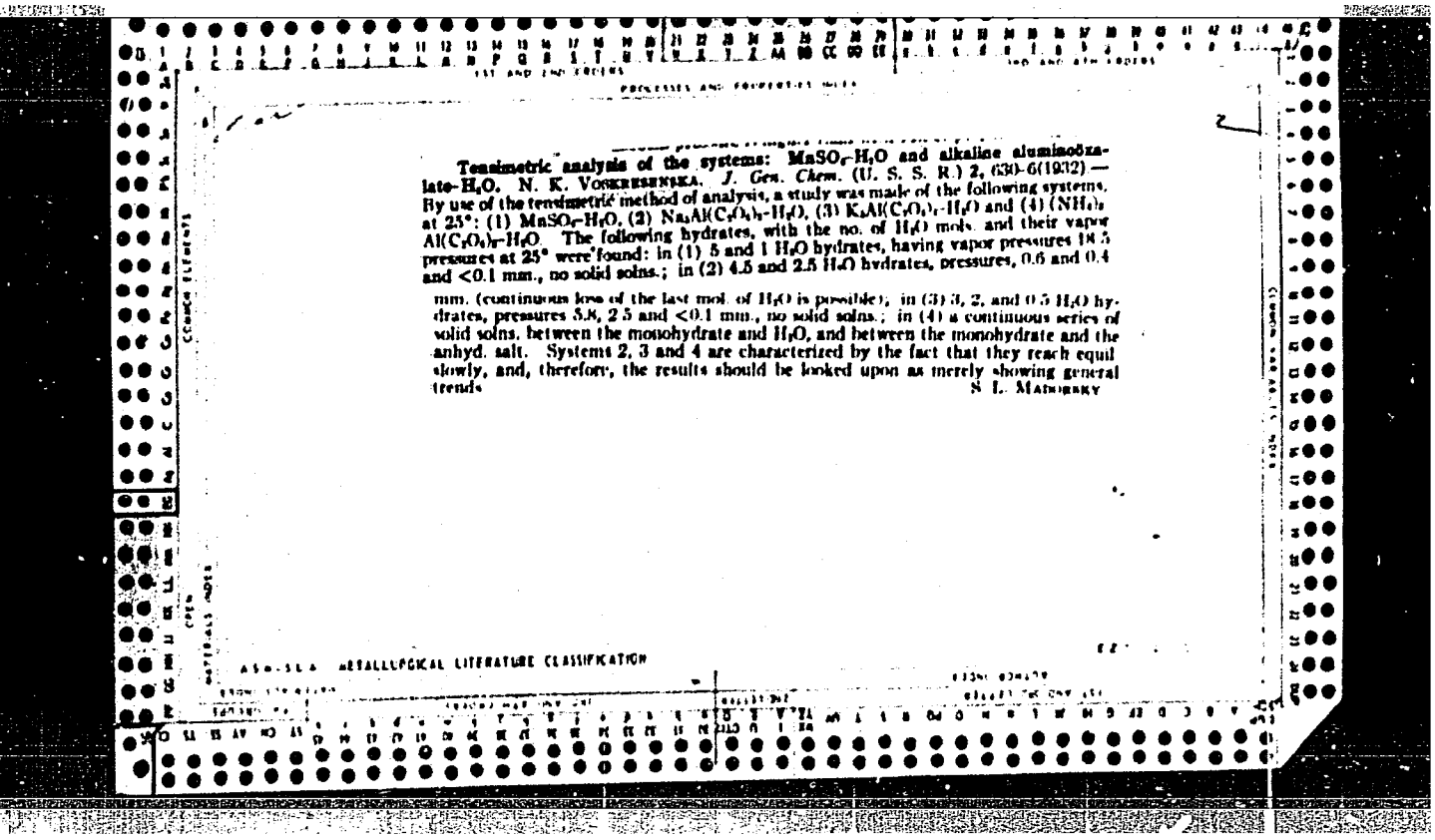
Commemorative dates in July-September, 1964. Sov. geol. 7 no.11:135-140 N '64. (MIRA 18:2)

TIKHOMIROV, V.V.; VOSKRESENSKAYA, N.A.

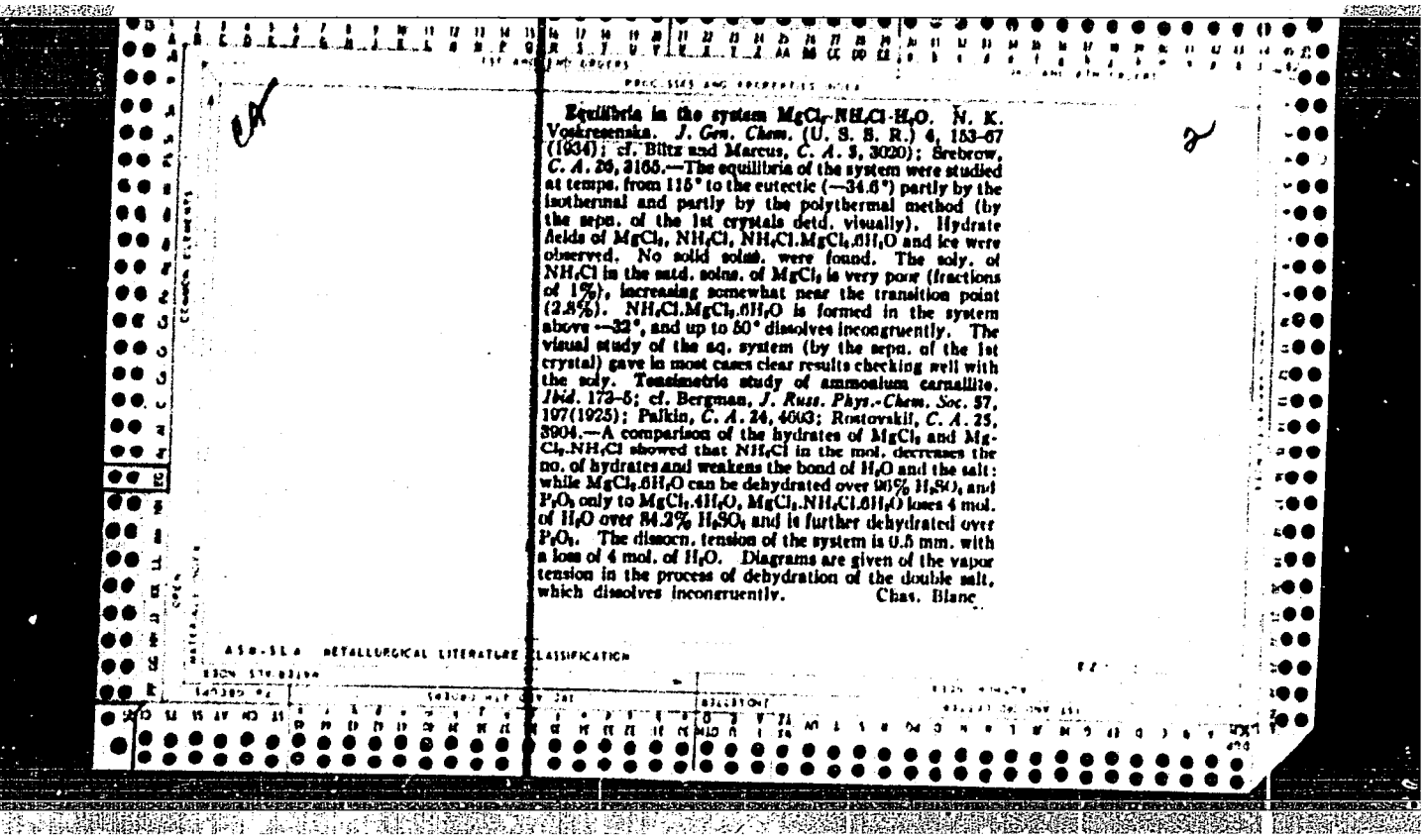
Commemorative dates in January-March 1965. Sov. geol. 8 no.3: 138-148 '65. (MIRA 18:5)

1. Geologicheskiy institut AN SSSR.

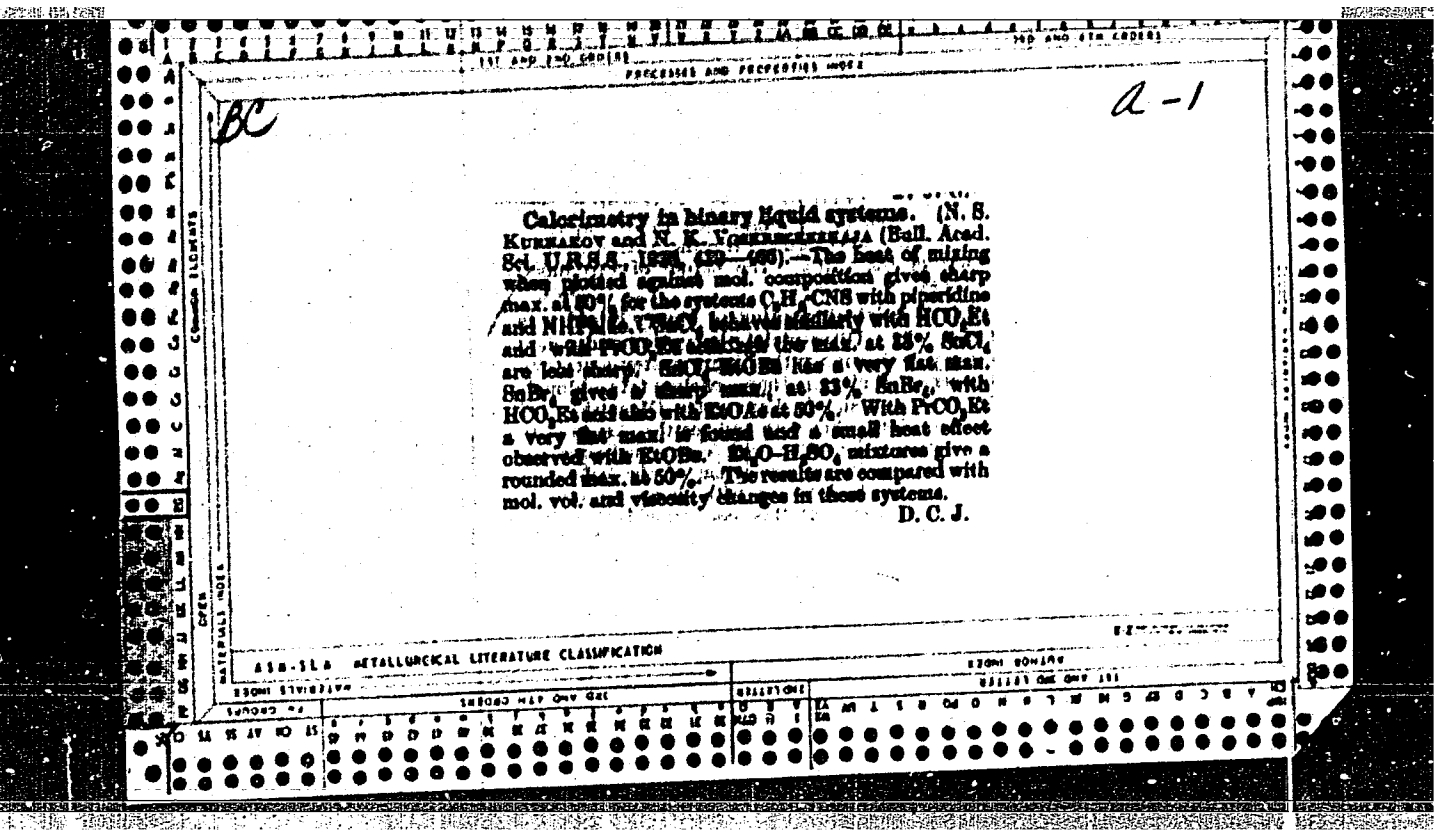




Tensimetric analysis of the systems: $MnSO_4$-H_2O and alkaline aluminoöxalate-H_2O. N. K. Voskresenskaya. *J. Gen. Chem.* (U. S. S. R.) 2, 630-6(1932) — By use of the tensimetric method of analysis, a study was made of the following systems, at 25°: (1) $MnSO_4$-H_2O, (2) $Na_3Al(C_2O_4)_3$-H_2O, (3) $K_3Al(C_2O_4)_3$-H_2O and (4) $(NH_4)_3Al(C_2O_4)_3$-H_2O. The following hydrates, with the no. of H_2O mols. and their vapor pressures at 25° were found: in (1) 5 and 1 H_2O hydrates, having vapor pressures 18.5 and <0.1 mm., no solid solns.; in (2) 4.5 and 2.5 H_2O hydrates, pressures, 0.6 and 0.4 mm. (continuous loss of the last mol. of H_2O is possible); in (3) 3, 2, and 0.5 H_2O hydrates, pressures 5.8, 2.5 and <0.1 mm., no solid solns.; in (4) a continuous series of solid solns. between the monohydrate and H_2O, and between the monohydrate and the anhyd. salt. Systems 2, 3 and 4 are characterized by the fact that they reach equil. slowly, and, therefore, the results should be looked upon as merely showing general trends. S. L. Madorsky



Equilibria in the system $MgCl_2$-NH_4Cl-H_2O. N. K. Voskresenskii. *J. Gen. Chem.* (U. S. S. R.) 4, 153-67 (1934); cf. Biltz and Marcus, *C. A.* 3, 3020); Srebrow, *C. A.* 26, 3165.—The equilibria of the system were studied at temps. from 115° to the eutectic (—34.6°) partly by the isothermal and partly by the polythermal method (by the sepn. of the 1st crystals detd. visually). Hydrate fields of $MgCl_2$, NH_4Cl, $NH_4Cl.MgCl_2.6H_2O$ and ice were observed. No solid solns. were found. The soly. of NH_4Cl in the satd. solns. of $MgCl_2$ is very poor (fractions of 1%), increasing somewhat near the transition point (2.8%). $NH_4Cl.MgCl_2.6H_2O$ is formed in the system above —32°, and up to 50° dissolves incongruently. The visual study of the sq. system (by the sepn. of the 1st crystal) gave in most cases clear results checking well with the soly. Tensimetric study of ammonium carnallite. *Ibid.* 173-5; cf. Bergman, *J. Russ. Phys.-Chem. Soc.* 57, 197(1925); Palkin, *C. A.* 24, 4663; Rostovskii, *C. A.* 25, 3904.—A comparison of the hydrates of $MgCl_2$ and $MgCl_2$-NH_4Cl showed that NH_4Cl in the mol. decreases the no. of hydrates and weakens the bond of H_2O and the salt: while $MgCl_2.6H_2O$ can be dehydrated over 90% H_2SO_4 and P_2O_5 only to $MgCl_2.4H_2O$, $MgCl_2.NH_4Cl.6H_2O$ loses 4 mol. of H_2O over 84.2% H_2SO_4 and is further dehydrated over P_2O_5. The dissocn. tension of the system is 0.5 mm. with a loss of 4 mol. of H_2O. Diagrams are given of the vapor tension in the process of dehydration of the double salt, which dissolves incongruently. Chas. Blanc

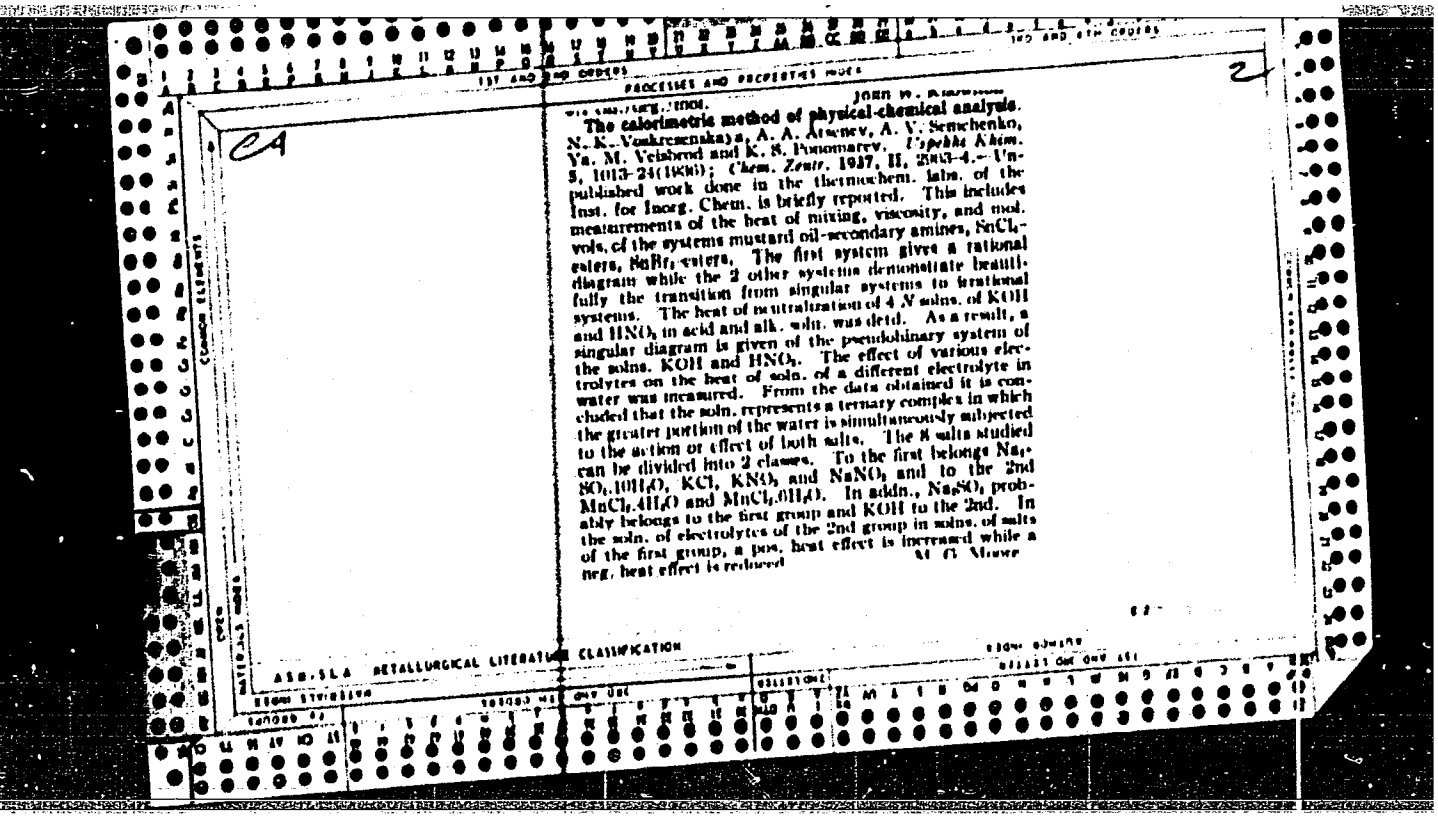


BC

a-1

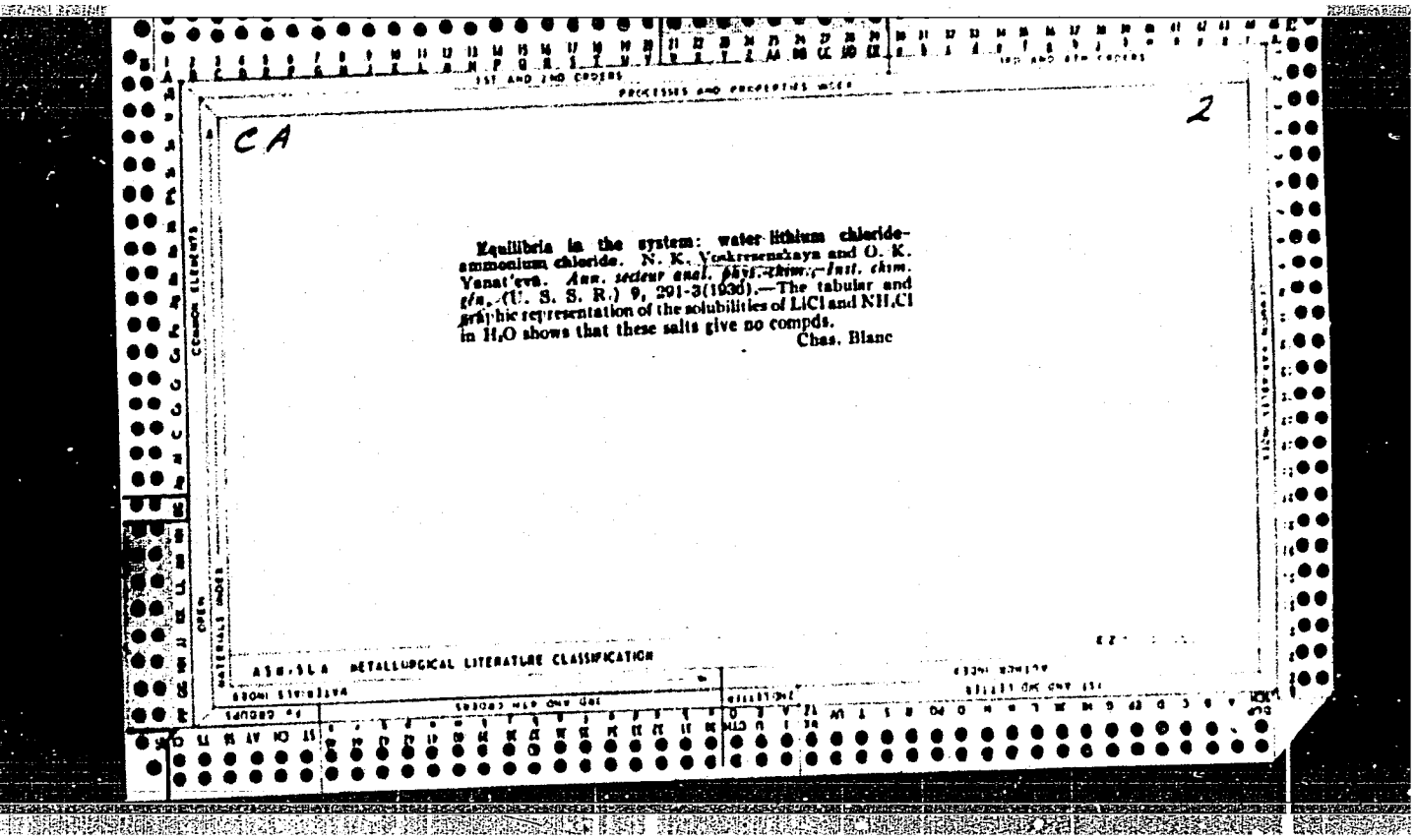
Calorimetry in binary liquid systems. (N. S. Kurnakov and N. K. Voskresenskaya (Bull. Acad. Sci. U.R.S.S., 1933, (3), 483—496).—The heat of mixing when plotted against mol. composition gives sharp max. at 50% for the systems C_5H_5CNS with piperidine and NH_2Ph. C_5H_5CNS behaves similarly with HCO_2Et and with $PrCO_2Et$ although the max. at 33% $SnCl_4$ are less sharp. $SnCl_4$–EtOEt has a very flat max. $SnBr_4$ gives a sharp max. at 33%. $SnBr_4$ with HCO_2Et and also with EtOAc at 50%. With $PrCO_2Et$ a very flat max. is found and a small heat effect observed with EtOEt. Et_2O–H_2SO_4 mixtures give a rounded max. at 50%. The results are compared with mol. vol. and viscosity changes in these systems.

D. C. J.



The calorimetric method of physical-chemical analysis. N. K. Voskresenskaya, A. A. Arseev, A. V. Semchenko, Ya. M. Veisberd and K. S. Ponomarev. *Uspekhi Khim.* 5, 1013-24(1936); *Chem. Zentr.* 1937, II, 2583-4.—Unpublished work done in the thermochem. labs. of the Inst. for Inorg. Chem. is briefly reported. This includes measurements of the heat of mixing, viscosity, and mol. vols. of the systems mustard oil-secondary amines, $SnCl_4$-esters, $SnBr_4$-esters. The first system gives a rational diagram while the 2 other systems demonstrate beautifully the transition from singular systems to irrational systems. The heat of neutralization of 4 *N* solns. of KOH and HNO_3 in acid and alk. soln. was detd. As a result, a singular diagram is given of the pseudobinary system of the solns. KOH and HNO_3. The effect of various electrolytes on the heat of soln. of a different electrolyte in water was measured. From the data obtained it is concluded that the soln. represents a ternary complex in which the greater portion of the water is simultaneously subjected to the action or effect of both salts. The 8 salts studied can be divided into 2 classes. To the first belongs $Na_2SO_4.10H_2O$, KCl, KNO_3 and $NaNO_3$ and to the 2nd $MnCl_2.4H_2O$ and $MnCl_2.6H_2O$. In addn., Na_2SO_4 probably belongs to the first group and KOH to the 2nd. In the soln. of electrolytes of the 2nd group in solns. of salts of the first group, a pos. heat effect is increased while a neg. heat effect is reduced

M. G. Mazur

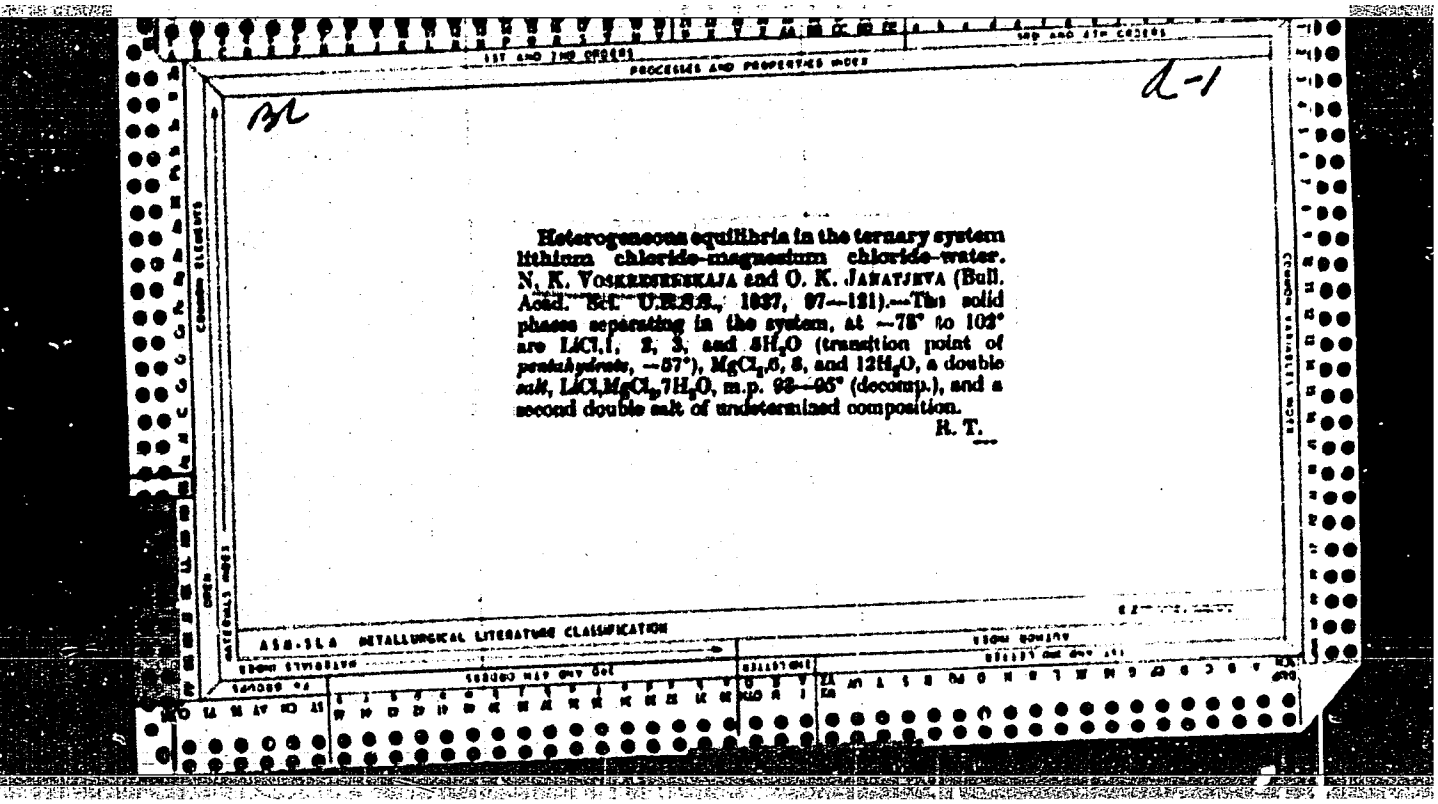


CA

2

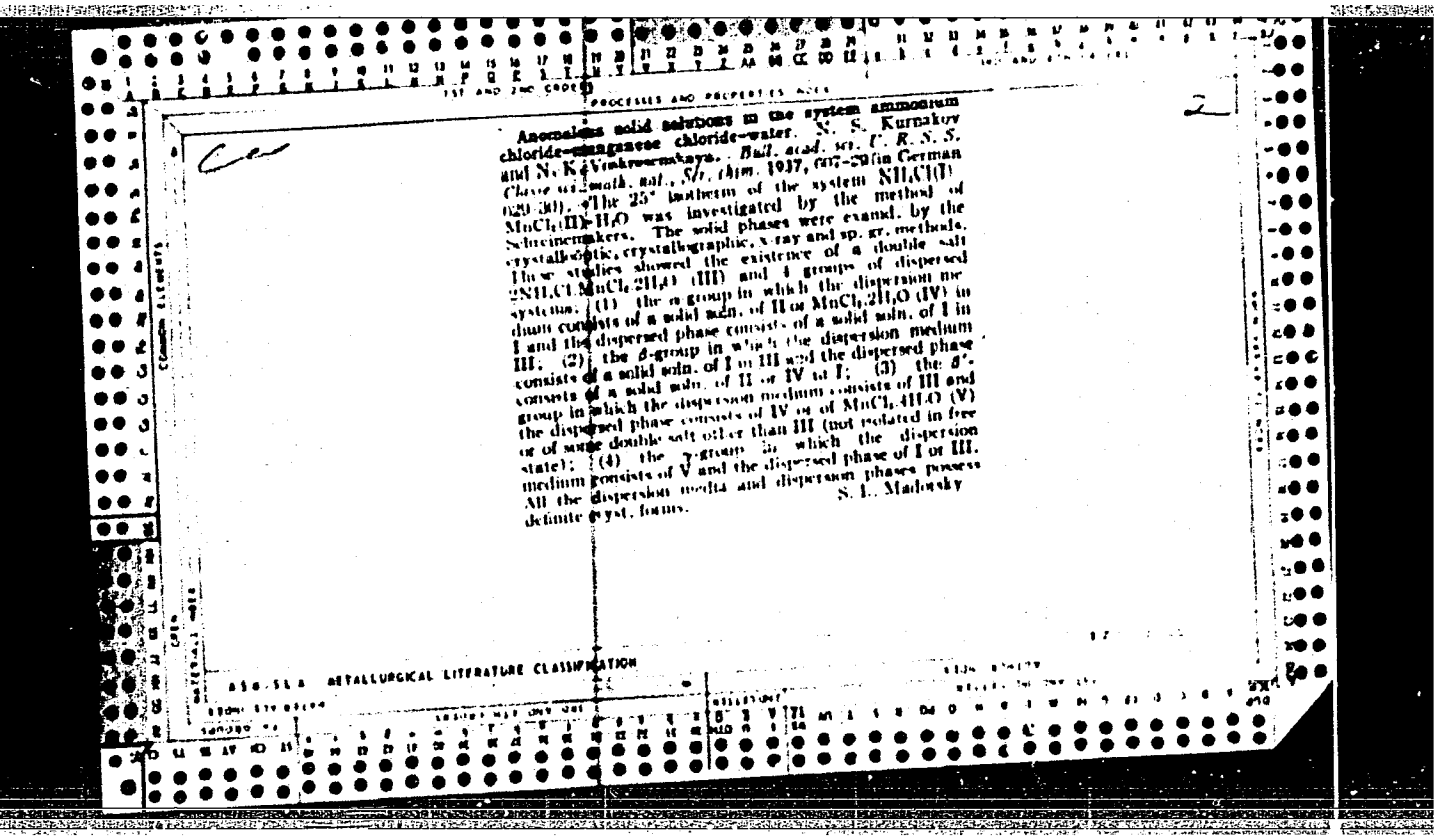
Equilibria in the system: water-lithium chloride-ammonium chloride. N. K. Yenkrenenkaya and O. K. Yanat'eva. *Ann. sector anal. phys.-chim. Inst. chim. gén.* (U. S. S. R.) 9, 291-3(1936).—The tabular and graphic representation of the solubilities of LiCl and NH_4Cl in H_2O shows that these salts give no compds.

Chas. Blanc



Heterogeneous equilibria in the ternary system lithium chloride-magnesium chloride-water. N. K. VOSKRESENSKAJA and O. K. JANATJEVA (Bull. Acad. Sci. U.R.S.S., 1937, 97—121).—The solid phases separating in the system, at —78° to 102° are LiCl.1, 2, 3, and $5H_2O$ (transition point of *pentahydrate*, —57°), $MgCl_2.6$, 8, and $12H_2O$, a double *salt*, $LiCl,MgCl_2.7H_2O$, m.p. 93—95° (decomp.), and a second double salt of undetermined composition.

R. T.

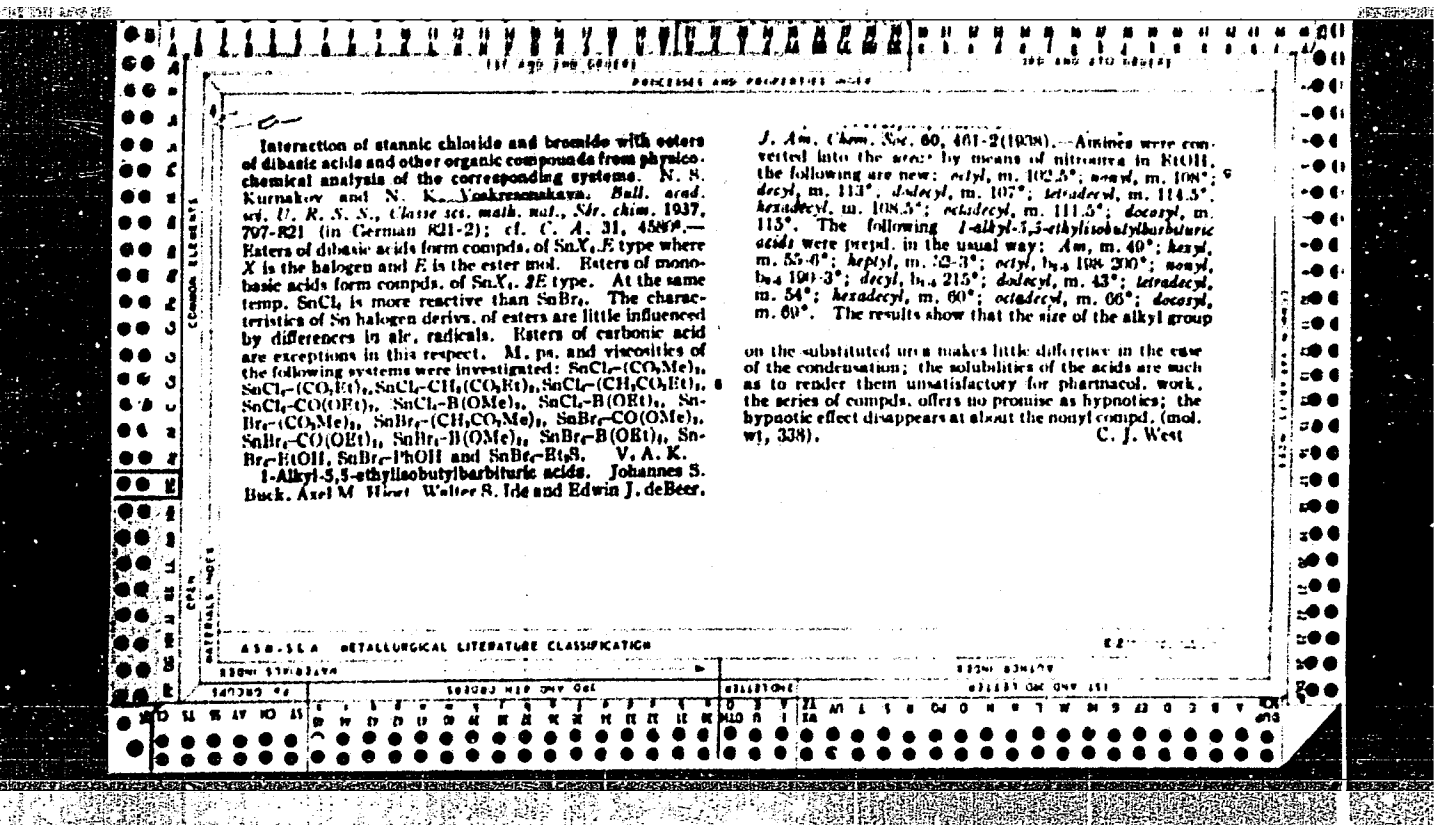


PROCESSES AND PROPERTIES INDEX

Anomalous solid solutions in the system ammonium chloride–manganese chloride–water. N. S. Kurnakov and N. K. Voskresenskaya. *Bull. acad. sci. U. R. S. S. Classe sci. math. nat., Sér. chim.* 1937, 607–29 (in German 629–30). The 25° isotherm of the system NH_4Cl–$MnCl_2(II)$–H_2O was investigated by the method of Schreinemakers. The solid phases were examd. by the crystalloptic, crystallographic, x-ray and sp. gr. methods. These studies showed the existence of a double salt $2NH_4Cl.MnCl_2.2H_2O$ (III) and 4 groups of dispersed systems: (1) the α-group in which the dispersion medium consists of a solid soln. of II or $MnCl_2.2H_2O$ (IV) in I and the dispersed phase consists of a solid soln. of I in III; (2) the β-group in which the dispersion medium consists of a solid soln. of I in III and the dispersed phase consists of a solid soln. of II or IV in I; (3) the β′-group in which the dispersion medium consists of III and the dispersed phase consists of IV or of $MnCl_2.4H_2O$ (V) or of some double salt other than III (not isolated in free state); (4) the γ-group in which the dispersion medium consists of V and the dispersed phase of I or III. All the dispersion media and dispersion phases possess definite cryst. forms.

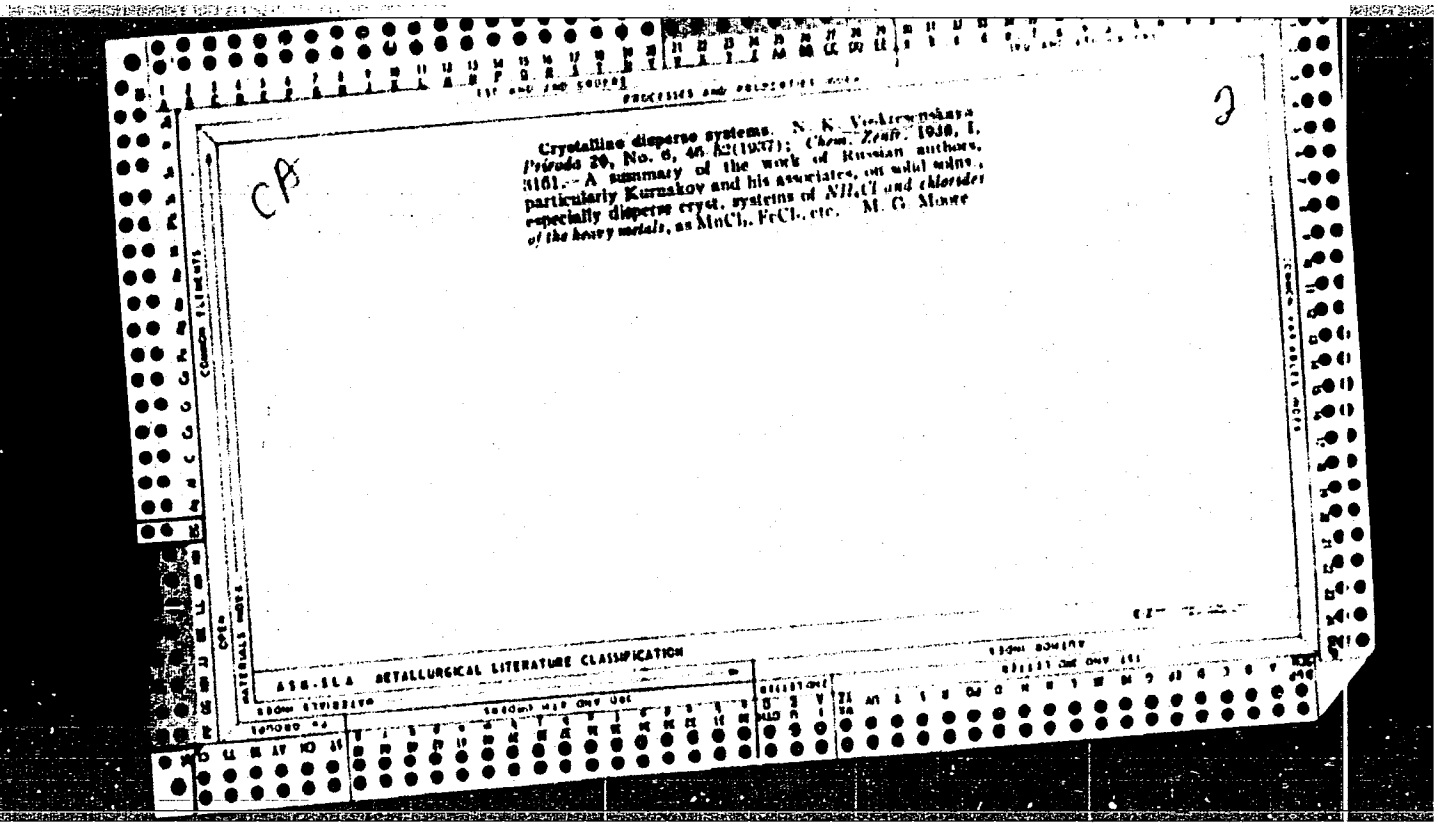
S. L. Madorsky

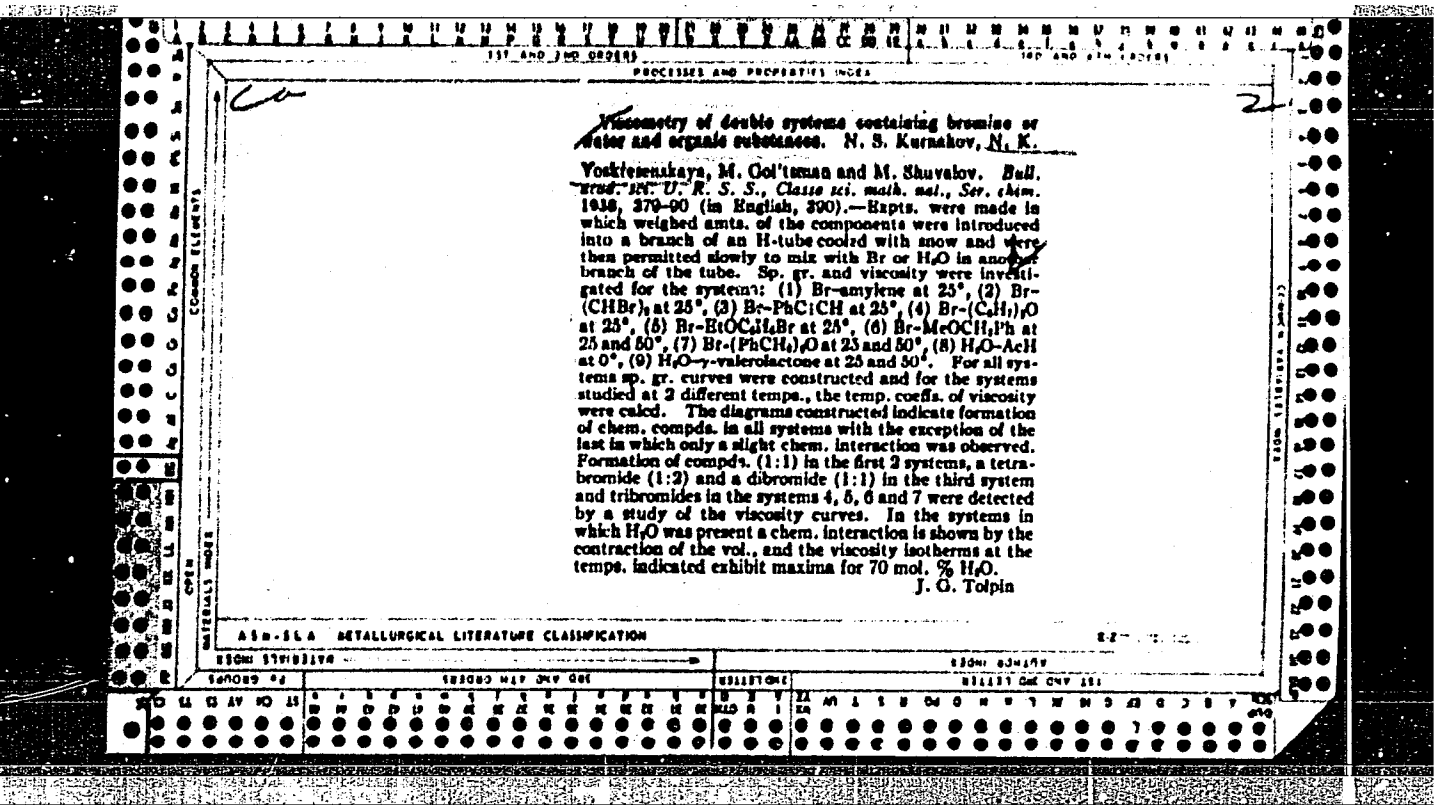
A56-51A METALLURGICAL LITERATURE CLASSIFICATION



Interaction of stannic chloride and bromide with esters of dibasic acids and other organic compounds from physico-chemical analysis of the corresponding systems. N. S. Kurnakov and N. K. Voskresenskaya. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat., Sér. chim.* 1937, 797-821 (in German 821-2); cf. *C. A.* 31, 4589⁹.—Esters of dibasic acids form compds. of $SnX_4.E$ type where X is the halogen and E is the ester mol. Esters of monobasic acids form compds. of $SnX_4.2E$ type. At the same temp. $SnCl_4$ is more reactive than $SnBr_4$. The characteristics of Sn halogen derivs. of esters are little influenced by differences in alc. radicals. Esters of carbonic acid are exceptions in this respect. M. ps. and viscosities of the following systems were investigated: $SnCl_4$–$(CO_2Me)_2$, $SnCl_4$–$(CO_2Et)_2$, $SnCl_4$–$CH_2(CO_2Et)_2$, $SnCl_4$–$(CH_2CO_2Et)_2$, $SnCl_4$–$CO(OEt)_2$, $SnCl_4$–$B(OMe)_3$, $SnCl_4$–$B(OEt)_3$, $SnBr_4$–$(CO_2Me)_2$, $SnBr_4$–$(CH_2CO_2Me)_2$, $SnBr_4$–$CO(OMe)_2$, $SnBr_4$–$CO(OEt)_2$, $SnBr_4$–$B(OMe)_3$, $SnBr_4$–$B(OEt)_3$, $SnBr_4$–EtOH, $SnBr_4$–PhOH and $SnBr_4$–Et_2S. V. A. K.

1-Alkyl-5,5-ethylisobutylbarbituric acids. Johannes S. Buck, Axel M. Hirst, Walter S. Ide and Edwin J. deBeer. *J. Am. Chem. Soc.* 60, 401-2(1938).—Amines were converted into the urea by means of nitrourea in EtOH, the following are new: *octyl*, m. 102.5°; *nonyl*, m. 108°; *decyl*, m. 113°; *dodecyl*, m. 107°; *tetradecyl*, m. 114.5°; *hexadecyl*, m. 108.5°; *octadecyl*, m. 111.5°; *docosyl*, m. 115°. The following *1-alkyl-5,5-ethylisobutylbarbituric acids* were prepd. in the usual way: *Am*, m. 40°; *hexyl*, m. 55-6°; *heptyl*, m. 32-3°; *octyl*, $b_{4.4}$ 198-200°; *nonyl*, $b_{4.4}$ 190-3°; *decyl*, $b_{4.4}$ 215°; *dodecyl*, m. 43°; *tetradecyl*, m. 54°; *hexadecyl*, m. 60°; *octadecyl*, m. 66°; *docosyl*, m. 69°. The results show that the size of the alkyl group on the substituted urea makes little difference in the case of the condensation; the solubilities of the acids are such as to render them unsatisfactory for pharmacol. work, the series of compds. offers no promise as hypnotics; the hypnotic effect disappears at about the nonyl compd. (mol. wt, 338). C. J. West



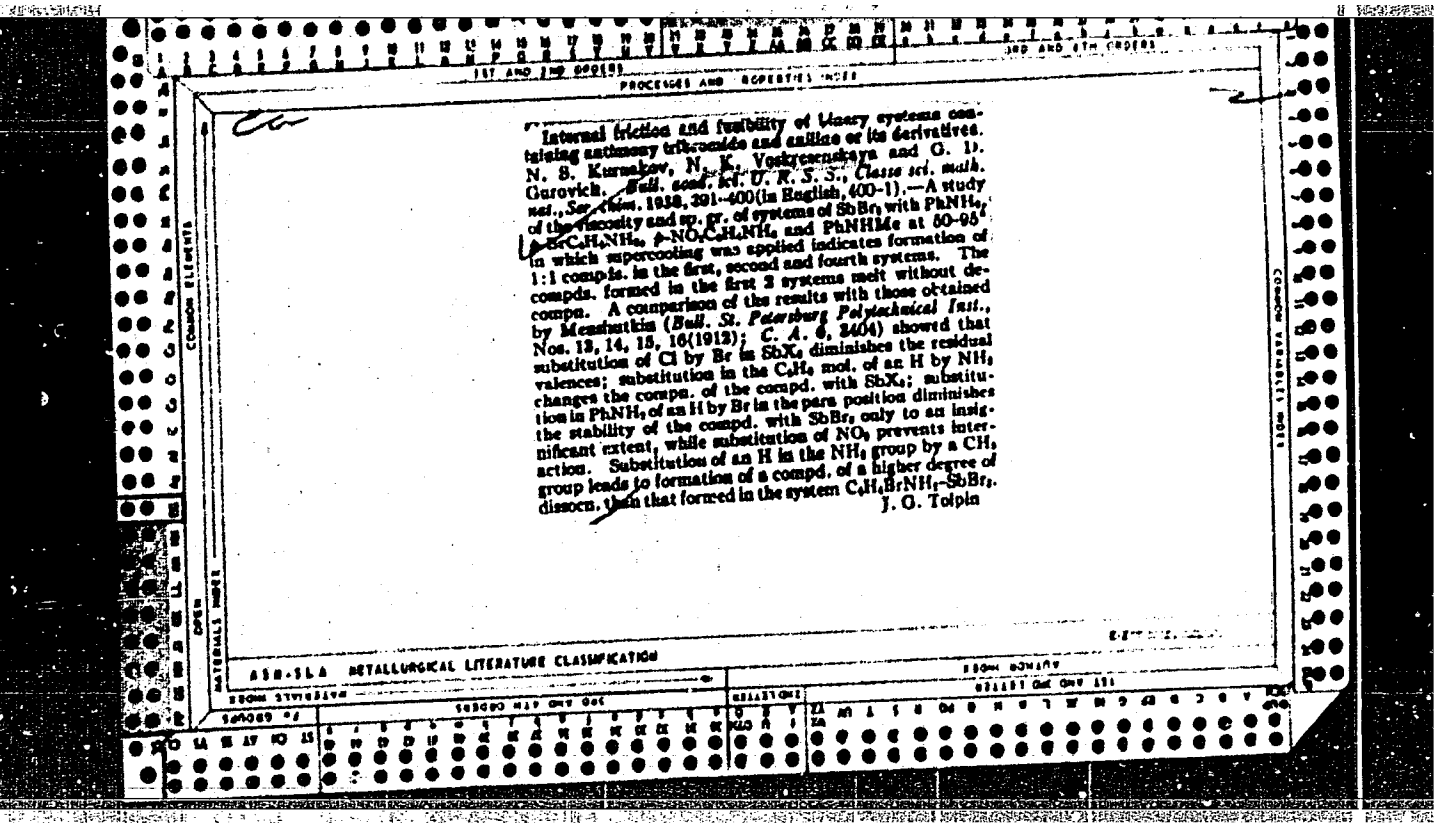


PROCESSES AND PROPERTIES INDEX

Viscometry of double systems containing bromine or water and organic substances. N. S. Kurnakov, N. K. Voskresenskaya, M. Col'tsman and M. Shuvalov. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat., Sér. chim.* 1938, 379–90 (in English, 390).—Expts. were made in which weighed amts. of the components were introduced into a branch of an H-tube cooled with snow and were then permitted slowly to mix with Br or H_2O in another branch of the tube. Sp. gr. and viscosity were investigated for the systems: (1) Br–amylene at 25°, (2) Br–$(CHBr)_3$ at 25°, (3) Br–PhC:CH at 25°, (4) Br–$(C_2H_5)_2O$ at 25°, (5) Br–$EtOC_2H_4Br$ at 25°, (6) Br–$MeOC_6H_4I$'h at 25 and 50°, (7) Br–$(PhCH_2)_2O$ at 25 and 50°, (8) H_2O–AcH at 0°, (9) H_2O–γ-valerolactone at 25 and 50°. For all systems sp. gr. curves were constructed and for the systems studied at 2 different temps., the temp. coeffs. of viscosity were calcd. The diagrams constructed indicate formation of chem. compds. in all systems with the exception of the last in which only a slight chem. interaction was observed. Formation of compds. (1:1) in the first 2 systems, a tetrabromide (1:2) and a dibromide (1:1) in the third system and tribromides in the systems 4, 5, 6 and 7 were detected by a study of the viscosity curves. In the systems in which H_2O was present a chem. interaction is shown by the contraction of the vol., and the viscosity isotherms at the temps. indicated exhibit maxima for 70 mol. % H_2O.

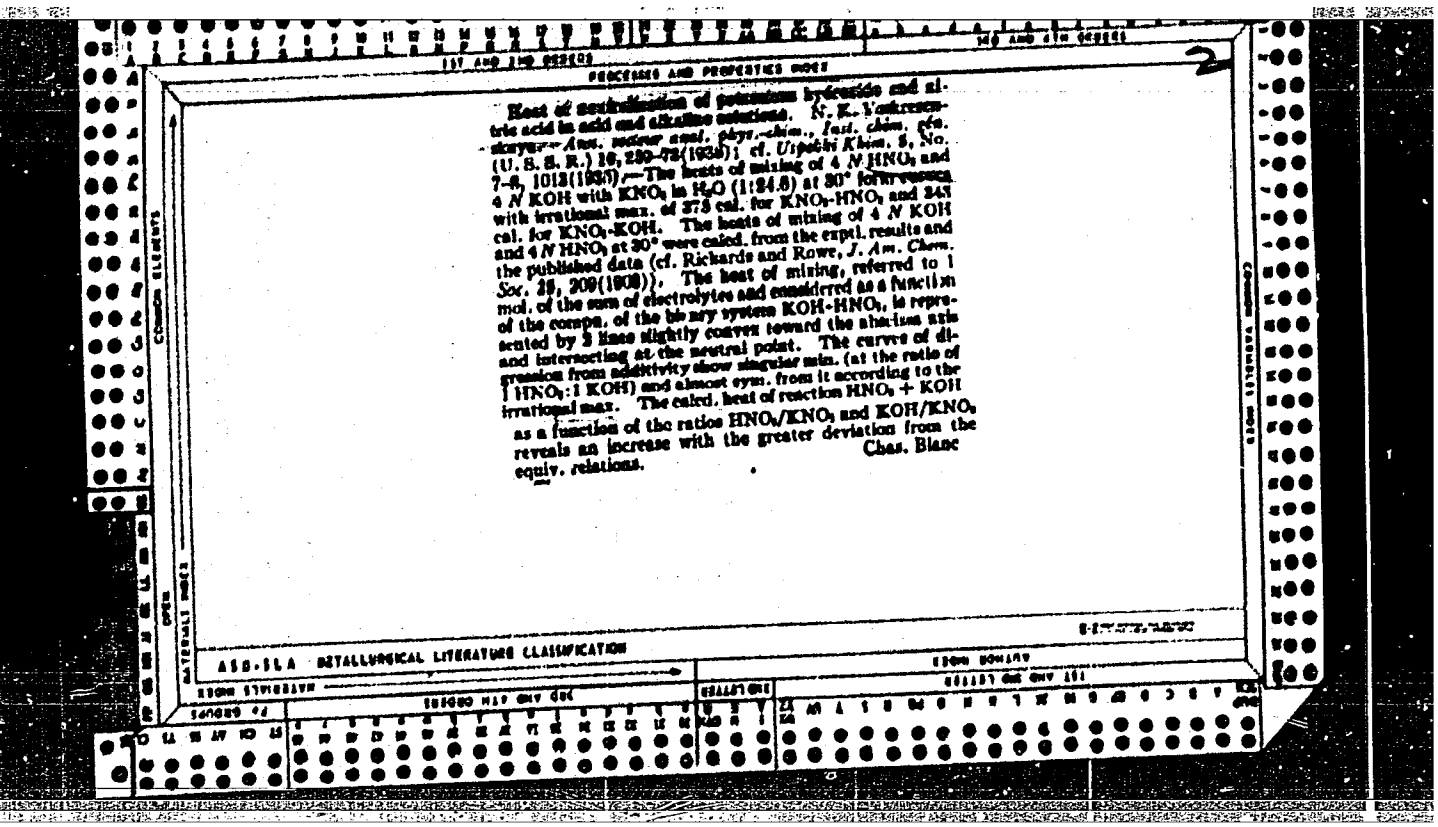
J. G. Tolpin

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION



Internal friction and fusibility of binary systems containing antimony trihalide and aniline or its derivatives. N. S. Kurnakov, N. K. Voskresenskaya and G. D. Gurovich. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat., Sér. chim.* 1938, 391–400 (in English, 400–1).—A study of the viscosity and sp. gr. of systems of $SbBr_3$ with $PhNH_2$, p-$BrC_6H_4NH_2$, p-$NO_2C_6H_4NH_2$, and $PhNHMe$ at 80–95° in which supercooling was applied indicates formation of 1:1 compds. in the first, second and fourth systems. The compds. formed in the first 2 systems melt without decompn. A comparison of the results with those obtained by Menshutkin (*Bull. St. Petersburg Polytechnical Inst.*, Nos. 13, 14, 15, 16 (1912); *C. A.* **6**, 3404) showed that substitution of Cl by Br in SbX_3 diminishes the residual valences; substitution in the C_6H_5 mol. of an H by NH_2 changes the compn. of the compd. with SbX_3; substitution in $PhNH_2$ of an H by Br in the para position diminishes the stability of the compd. with $SbBr_3$ only to an insignificant extent, while substitution of NO_2 prevents interaction. Substitution of an H in the NH_2 group by a CH_3 group leads to formation of a compd. of a higher degree of dissocn. than that formed in the system $C_6H_5BrNH_2$–$SbBr_3$.

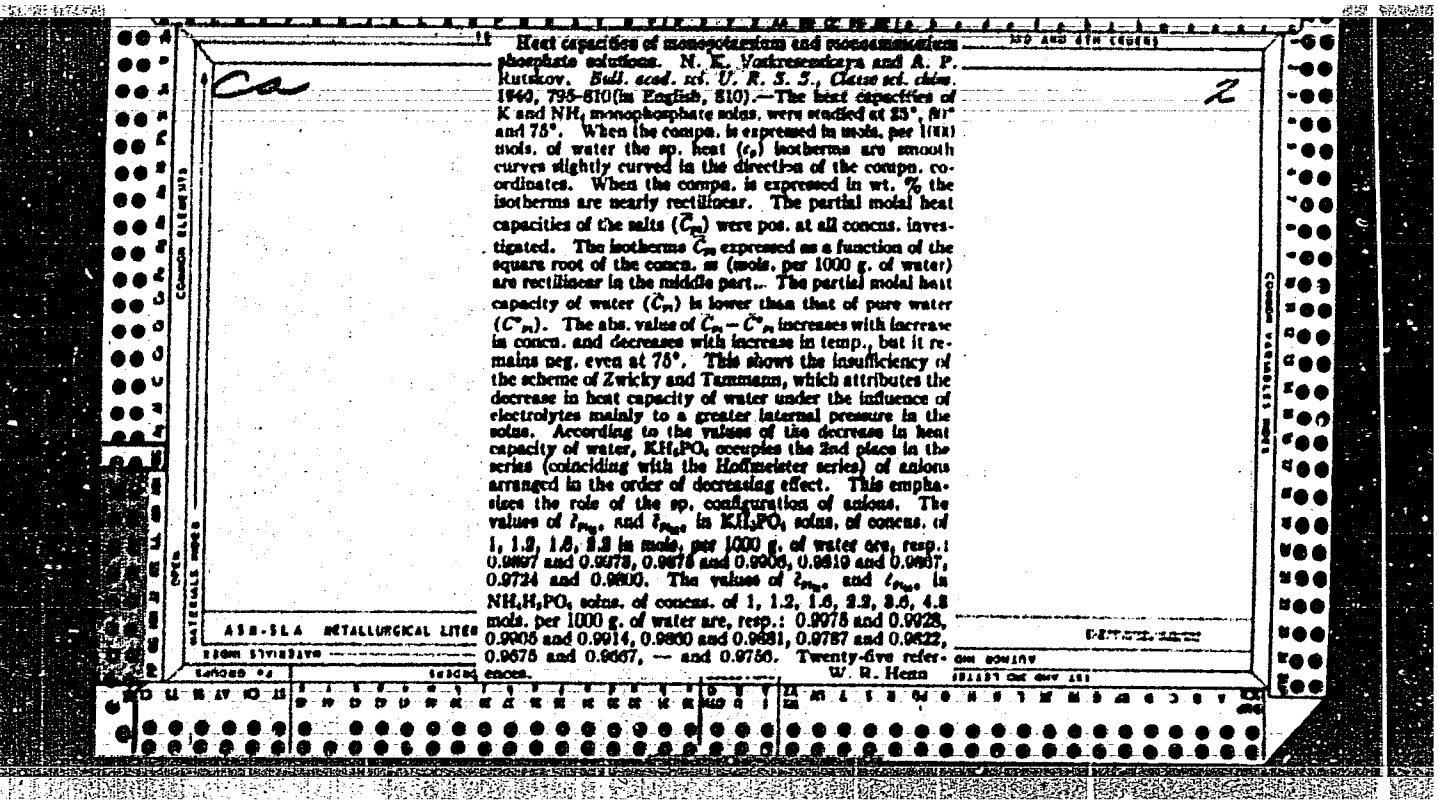
J. G. Tolpin



PROCESSES AND PROPERTIES INDEX

Heat of neutralization of potassium hydroxide and nitric acid in acid and alkaline solutions. N. K. Voskresenskaya.—*Ann. sector anal. phys.-chim., Inst. chim. gén. (U. S. S. R.)* 10, 239-72(1938); cf. *Uspekhi Khim.* 5, No. 7-8, 1013(1937).—The heats of mixing of 4 *N* HNO_3 and 4 *N* KOH with KNO_3 in H_2O (1:24.8) at 30° form curves with irrational max. of 375 cal. for KNO_3-HNO_3 and 345 cal. for KNO_3-KOH. The heats of mixing of 4 *N* KOH and 4 *N* HNO_3 at 30° were calcd. from the exptl. results and the published data (cf. Richards and Rowe, *J. Am. Chem. Soc.* 28, 209(1906)). The heat of mixing, referred to 1 mol. of the sum of electrolytes and considered as a function of the compn. of the ternary system KOH-HNO_3, is represented by 2 lines slightly convex toward the abscissa axis and intersecting at the neutral point. The curves of dispersion from additivity show singular min. (at the ratio of 1 HNO_3:1 KOH) and almost sym. from it according to the irrational max. The calcd. heat of reaction HNO_3 + KOH as a function of the ratios HNO_3/KNO_3 and KOH/KNO_3 reveals an increase with the greater deviation from the equiv. relations. Chas. Blanc

A50-51A METALLURGICAL LITERATURE CLASSIFICATION

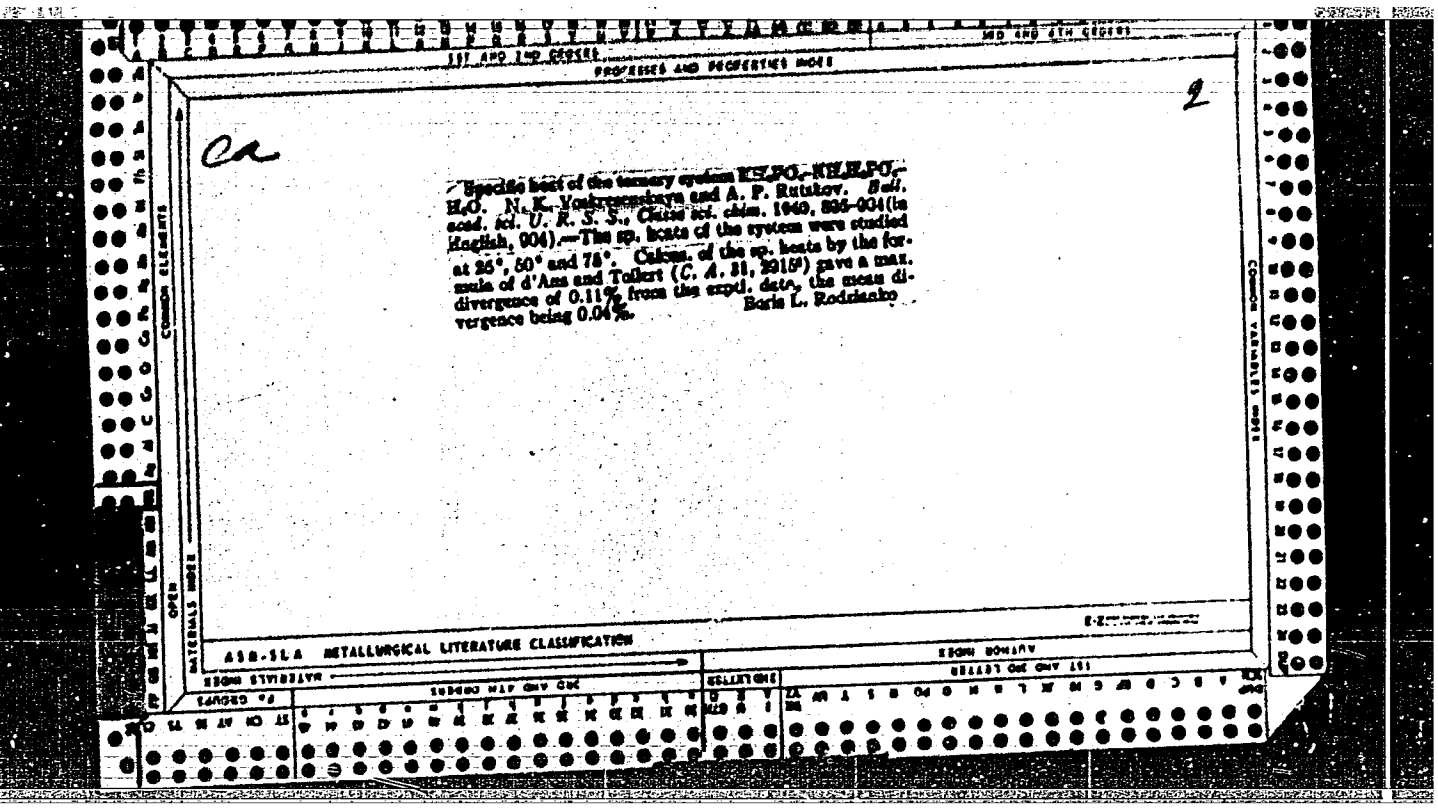


Ca

Heat capacities of monopotassium and monoammonium phosphate solutions. N. K. Voskresenskaya and A. P. Rutskov. *Bull. acad. sci. U. R. S. S., Classe sci. chim.* 1940, 795-810 (in English, 810).—The heat capacities of K and NH_4 monophosphate solns. were studied at 25°, 50° and 75°. When the compn. is expressed in mols. per 1000 mols. of water the sp. heat (c_p) isotherms are smooth curves slightly curved in the direction of the compn. coördinates. When the compn. is expressed in wt. % the isotherms are nearly rectilinear. The partial molal heat capacities of the salts ($\bar{C}_{p_2}$) were pos. at all concns. investigated. The isotherms $\bar{C}_{p_2}$ expressed as a function of the square root of the concn. m (mols. per 1000 g. of water) are rectilinear in the middle part. The partial molal heat capacity of water ($\bar{C}_{p_1}$) is lower than that of pure water ($C^\circ_{p_1}$). The abs. values of $\bar{C}_{p_1} - C^\circ_{p_1}$ increases with increase in concn. and decreases with increase in temp., but it remains neg. even at 75°. This shows the insufficiency of the scheme of Zwicky and Tammann, which attributes the decrease in heat capacity of water under the influence of electrolytes mainly to a greater internal pressure in the solns. According to the values of the decrease in heat capacity of water, KH_2PO_4 occupies the 2nd place in the series (coinciding with the Hofmeister series) of anions arranged in the order of decreasing effect. This emphasizes the role of the sp. configuration of anions. The values of $i_{p_{H_2O}}$ and $i_{p_{salt}}$ in KH_2PO_4 solns. of concns. of 1, 1.2, 1.6, 2.2 in mols. per 1000 g. of water are, resp.: 0.9897 and 0.9978, 0.9875 and 0.9906, 0.9819 and 0.9907, 0.9724 and 0.9900. The values of $i_{p_{H_2O}}$ and $i_{p_{salt}}$ in $NH_4H_2PO_4$ solns. of concns. of 1, 1.2, 1.6, 2.2, 3.6, 4.8 mols. per 1000 g. of water are, resp.: 0.9975 and 0.9928, 0.9905 and 0.9914, 0.9800 and 0.9881, 0.9787 and 0.9822, 0.9675 and 0.9867, — and 0.9756. Twenty-five references.

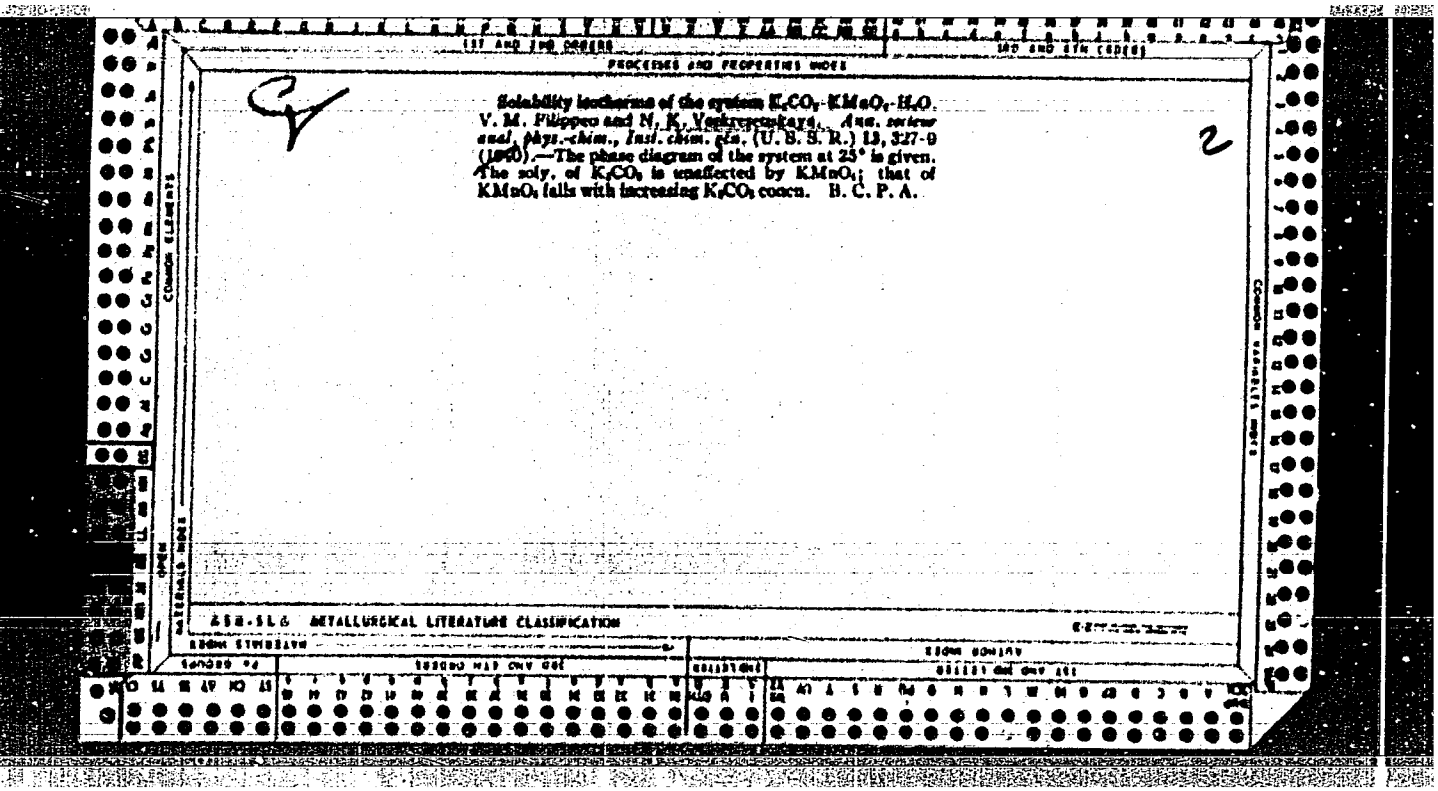
W. R. Henn

2



Specific heat of the ternary system KH_2PO_4-$NH_4H_2PO_4$-H_2O. N. K. Voskresenskaya and A. P. Rutitov. *Bull. acad. sci. U. R. S. S., Classe sci. chim.* 1940, 896-904 (in English, 904).—The sp. heats of the system were studied at 25°, 50° and 75°. Calcns. of the sp. heats by the formula of d'Ans and Tollert (*C. A.* 31, 2915⁶) gave a max. divergence of 0.11% from the exptl. data, the mean divergence being 0.04%.

Boris L. Rodriaako



Solubility isotherms of the system K_2CO_3-$KMnO_4$-H_2O.
V. M. Filippov and N. K. Venkatesvarlu. *Ann. sektora analiz. fiziko.-khim., Inst. obshch. i neorg. khim.* (U. S. S. R.) 13, 327-9 (1950).—The phase diagram of the system at 25° is given. The soly. of K_2CO_3 is unaffected by $KMnO_4$; that of $KMnO_4$ falls with increasing K_2CO_3 concn. B. C. P. A.

1.

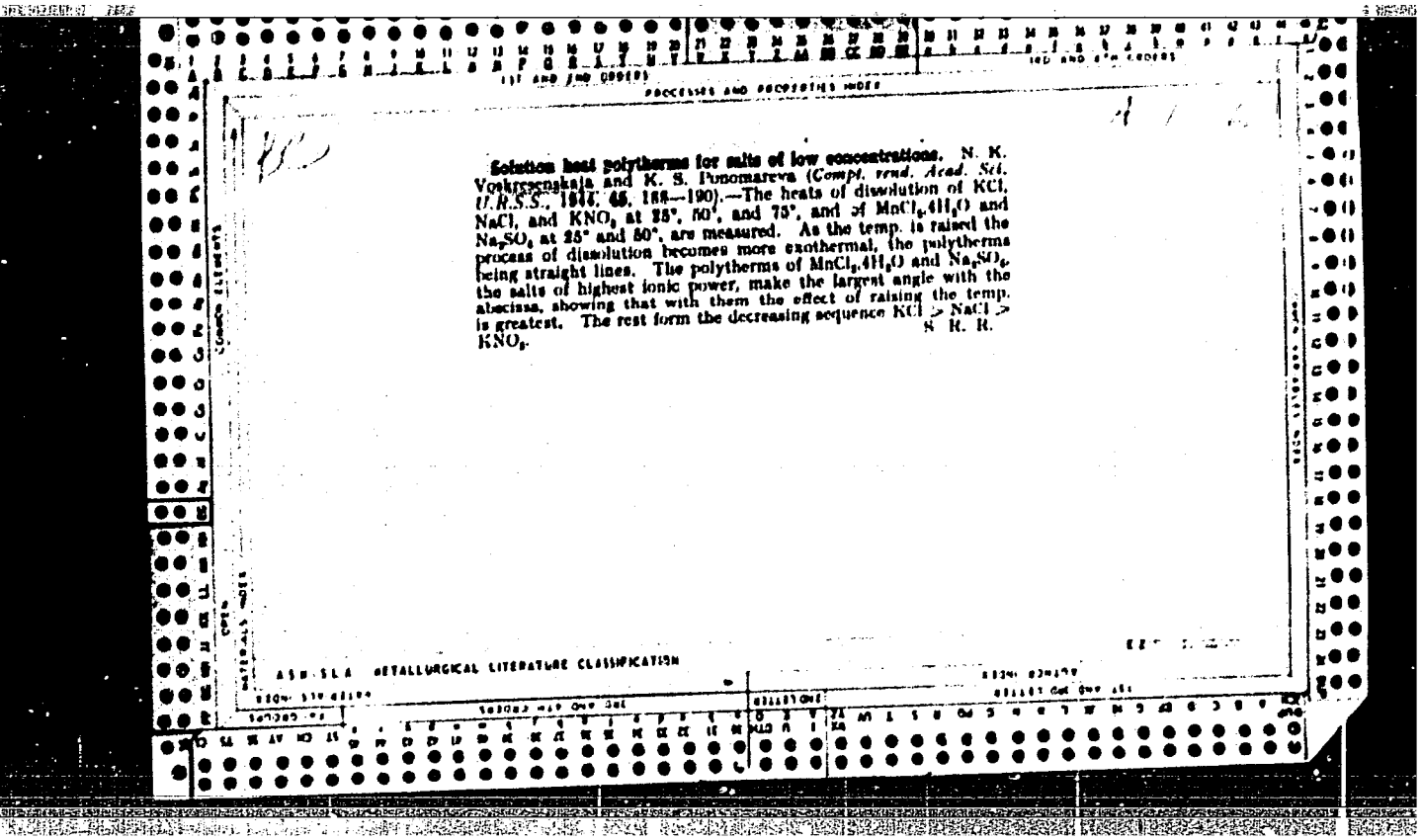
VORKRESENKAYA, N. K., RAVICH, M. I., and Ye. B SHTERNINA

"Viscometric Method of Physicochemical Analysis." Conf. of Viscosity of Liquids and Colloidal Solns. 1, 31-9 (1941). SO: Chemical Abstracts, Vol 40, No 11, 10 Jan 46

Typical cases of viscosity-compn. isotherms are reviewed. classified, and analyzed, mianly on the basis of the work of the school of N. S. Kurnakov and of Ravich, with special attention to the case of chem. interaction of the components. Formation of a stable compd. with a sharp max. of the viscosity isotherm is illustrated by the system aniline-mustard oil and systems consisting of derivs. of these compds.; viscosity curves show the max. much more markedly that melting diagrams or compn. isotherms of other properties. Such systems are termed rational. In the case of a partly dissocg. compd. ("irrational systems") the max. is broadened and usually shifted to the side of the component with the higher viscosity; the shift of the position of the max. varies with the temp. When Chem. interaction is only slight, the max. disapperats and only a more or less pronounced convexity of the curve remains. Such systems often show max. of the temp. coeff. of the viscosity, situated much closer to the compn. corresponding to that of the compd. and much more marked than that of the viscosity curve itself, example: $SnCl_4$-Et_2CO_3. S-shaped viscosity curves show an inflection point

at the compn. corresponding to the compd., e.g., C_6H_6-$2SbCl_3$. In some instances the viscosity isotherm has a max. even though the melting diagram shows an eutectic min. More frequently, a max. is absent in the viscosity curve although the melting diagram shows the existence of a definite compd., e.g., H_2O-SO_3; this indicates decompn. of the compd. in the liqiud phase at all temps. above melting. The viscosity diagram of the ternary system m-phenylenediamine (p)-bebzoic acid (b)-salicylic acid (s) reveals the three binary comds. Bp, sp, and bs, of which sp has th highest viscosity; the compd. bs is now indicated on the melting diagram. Another example of the "Rational" ternary system is K_2O-P_2O_5-H_2O, the viscosity diagram of which shows a sharp singular crest K_3PO_4-H_2O. The ternary system aniline (a)-water (w)-acetic acid (c) illustrates a viscometric diagram of the irrational type; the binary max. corresponding to the compd. A2c is somewhat shifted towards c; on addn. of w, this max. becomes a ridge, shifted towards c from the secant, a 2c-w. A similar shape is shown by the viscosity space model of chloral (c)-ethyl alchol (e)-benzene (b). In this system addn. of a third component has the same effect on viscosity as has an increase of temp.: plots of the viscosity against the relative concns. of c and e at equal concns. of b, show that the viscosity decreases with increasing content in b and the max. moves away ever more from the ordinate of the compd. towards e. Viscometric analysis of ternary systems is particulary fruitful whrn binary melating diagrams are not readily accessible.

Mbr., Inst. Gen. & Inorg. Chem., Dept. Chem. Sci., -1940-47-. Mbr., Lab. Phys. Chem., Archangel'sk Inst. Timber Ind., -1940-.



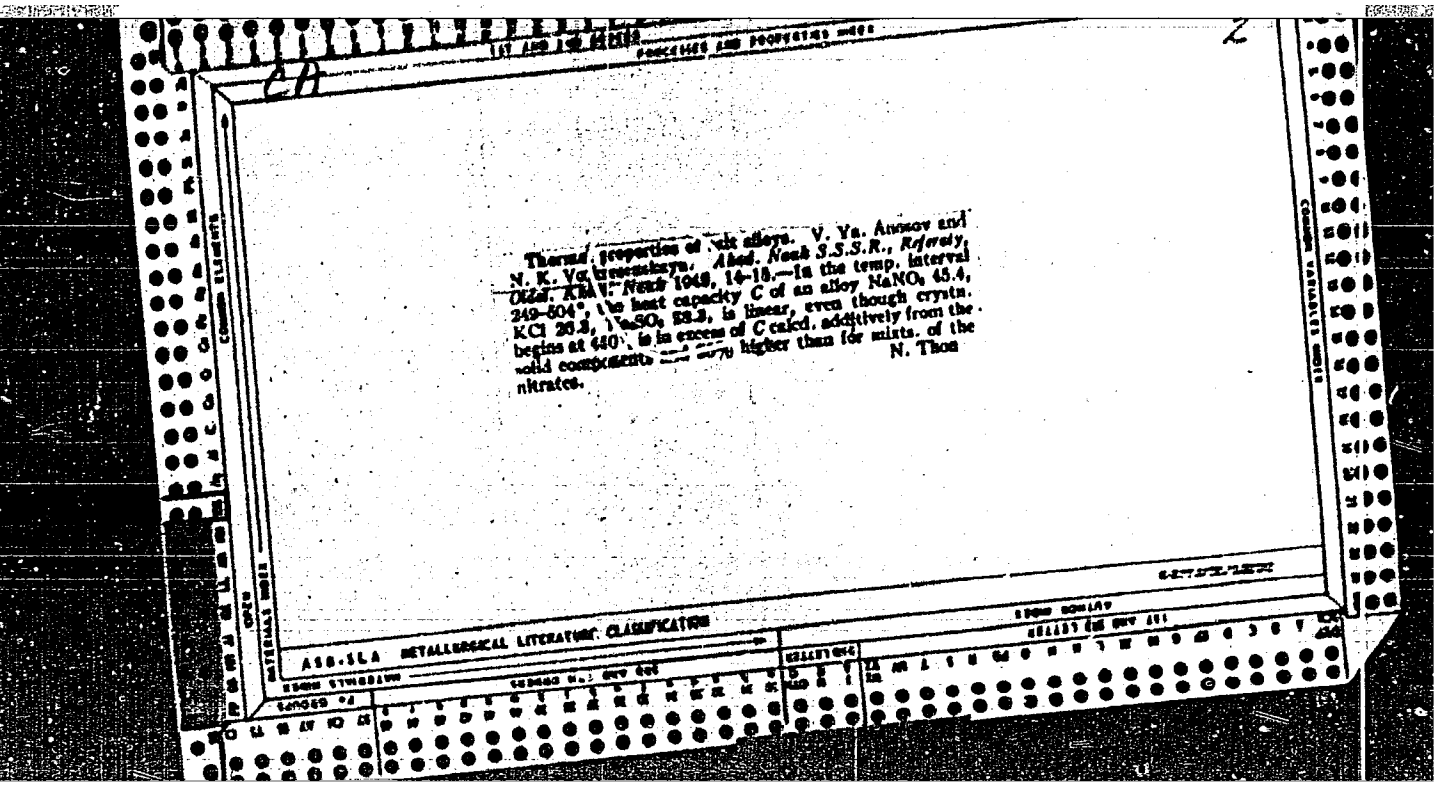
Solution heat polytherms for salts of low concentrations. N. K. Voskresenskaja and K. S. Ponomareva (*Compt. rend. Acad. Sci. U.R.S.S.*, 1946, **45**, 188—190).—The heats of dissolution of KCl, NaCl, and KNO_3 at 25°, 50°, and 75°, and of $MnCl_2.4H_2O$ and Na_2SO_4 at 25° and 50°, are measured. As the temp. is raised the process of dissolution becomes more exothermal, the polytherms being straight lines. The polytherms of $MnCl_2.4H_2O$ and Na_2SO_4, the salts of highest ionic power, make the largest angle with the abscissa, showing that with them the effect of raising the temp. is greatest. The rest form the decreasing sequence KCl > NaCl > KNO_3.

S. R. R.

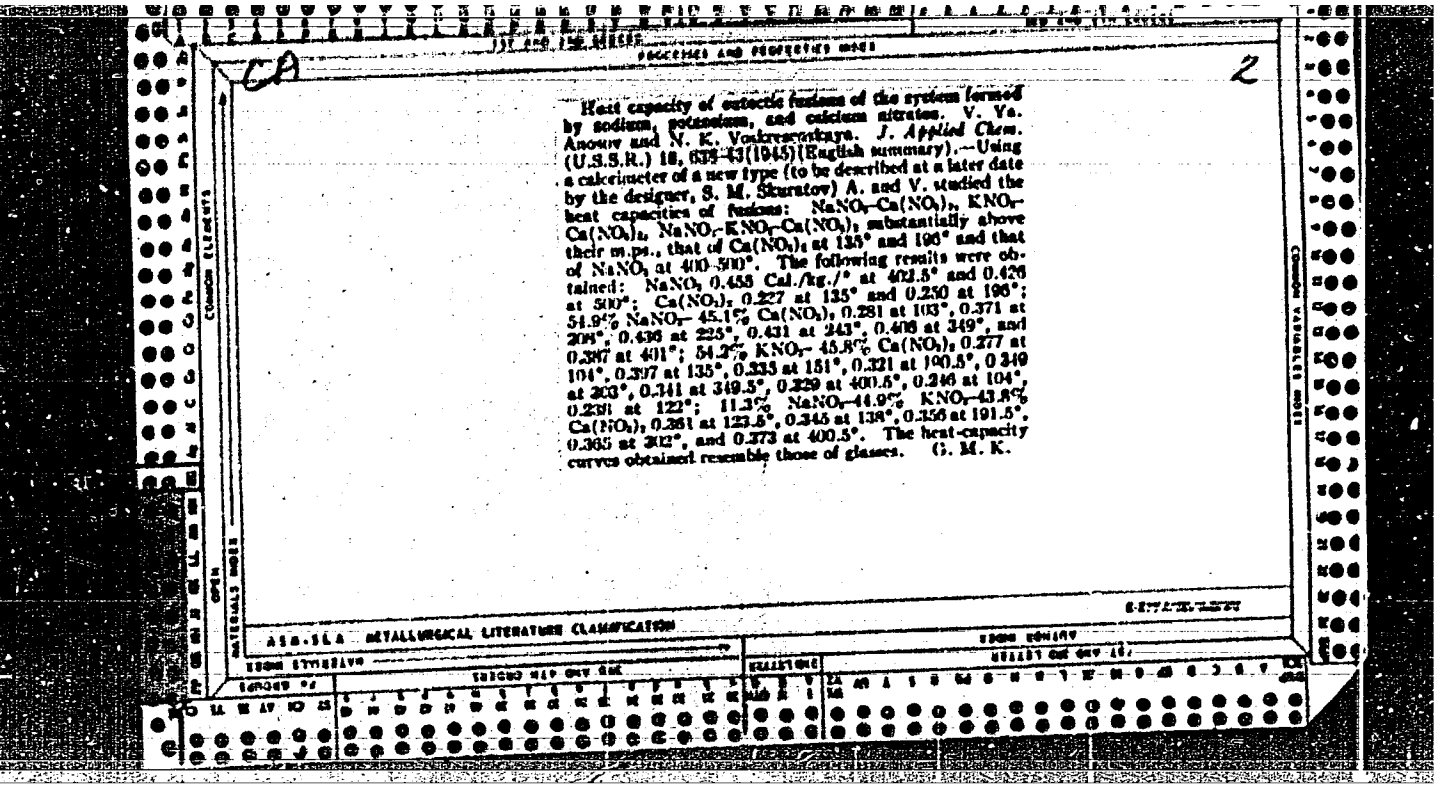
A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

Pr. Ch.

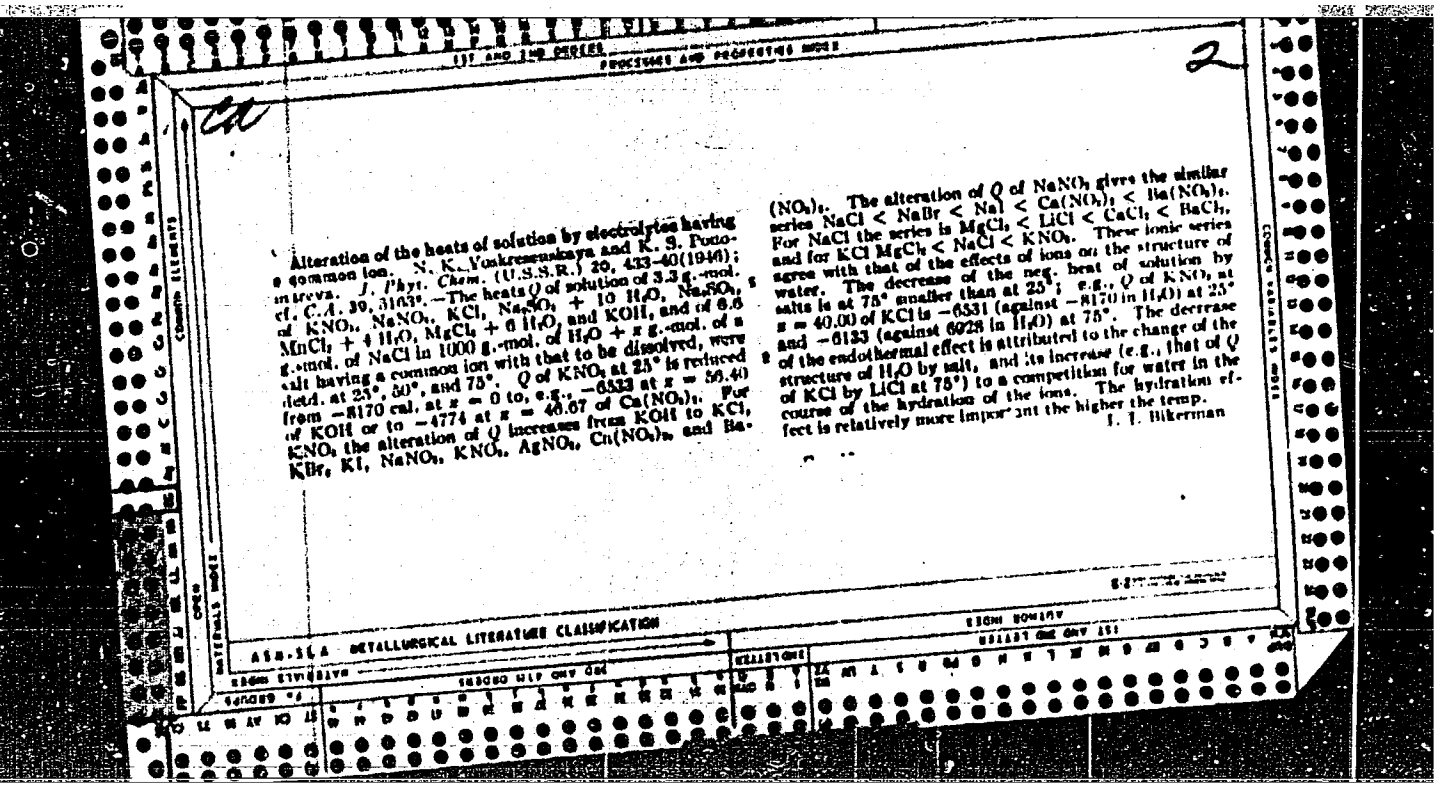
Reflexion of the quasi-crystalline structure of water in the specific heats of aqueous salt solutions. N. K. Voskresenskaja and G. N. Jankovskaja (*Bull. Acad. Sci. U.R.S.S., Cl. Sci. Chim.*, 1945, 3—13).—The effect of different ions and salts on the sp. heat of H_2O increases with the radius of the ion and depends on the configuration of polyat. ions. The effect is greater with anions than with cations. Measurements have been made in the systems NaCl-H_2O, Na_2SO_4-H_2O, NaCl-Na_2SO_4-H_2O (30°), and $MgSO_4$-K_2SO_4-H_2O (25°). The relative effects found correspond with the effects of the same ions on the H_2O II ⇌ H_2O III equilibrium. L. J. J.



Thermal properties of salt alloys. V. Ya. Anosov and N. K. Voskresenskaya. *Akad. Nauk S.S.S.R., Rafinaty Otdel. Khim. Sektor* 1948, 14–18.—In the temp. interval 249–604°, the heat capacity C of an alloy $NaNO_3$ 45.4, KCl 20.8, Na_2SO_4 33.8, is linear, even though crystn. begins at 440°, is in excess of C calcd. additively from the solid components [illegible] higher than for mixts. of the nitrates. N. Thon



Heat capacity of eutectic fusions of the system formed by sodium, potassium, and calcium nitrates. V. Ya. Anosov and N. K. Voskresenskaya. *J. Applied Chem.* (U.S.S.R.) 18, 639-43(1945)(English summary).—Using a calorimeter of a new type (to be described at a later date by the designer, S. M. Skuratov) A. and V. studied the heat capacities of fusions: $NaNO_3$–$Ca(NO_3)_2$, KNO_3–$Ca(NO_3)_2$, $NaNO_3$–KNO_3–$Ca(NO_3)_2$, substantially above their m.pp., that of $Ca(NO_3)_2$ at 135° and 196° and that of $NaNO_3$ at 400-500°. The following results were obtained: $NaNO_3$ 0.455 Cal./kg./° at 402.5° and 0.426 at 500°; $Ca(NO_3)_2$ 0.227 at 135° and 0.250 at 196°; 54.9% $NaNO_3$–45.1% $Ca(NO_3)_2$ 0.281 at 103°, 0.371 at 208°, 0.436 at 225°, 0.431 at 243°, 0.408 at 349°, and 0.397 at 401°; 54.2% KNO_3–45.8% $Ca(NO_3)_2$ 0.277 at 104°, 0.397 at 135°, 0.335 at 151°, 0.321 at 190.5°, 0.349 at 203°, 0.341 at 349.5°, 0.329 at 400.5°, 0.246 at 104°, 0.291 at 122°; 11.3% $NaNO_3$–44.9% KNO_3–43.8% $Ca(NO_3)_2$ 0.361 at 123.5°, 0.345 at 138°, 0.356 at 191.5°, 0.365 at 302°, and 0.373 at 400.5°. The heat-capacity curves obtained resemble those of glasses. G. M. K.



Alteration of the heats of solution by electrolytes having a common ion. N. K. Yoskresenskaya and K. S. Pozdnyakova. *J. Phys. Chem.* (U.S.S.R.) 20, 433–40(1946); cf. *C.A.* 39, 3103⁹.—The heats Q of solution of 3.3 g.-mol. of KNO_3, $NaNO_3$, KCl, Na_2SO_4 + 10 H_2O, Na_2SO_4 + $MnCl_2$ + 4 H_2O, $MgCl_2$ + 6 H_2O, and KOH, and of 6.6 g.-mol. of NaCl in 1000 g.-mol. of H_2O + x g.-mol. of a salt having a common ion with that to be dissolved, were detd. at 25°, 50°, and 75°. Q of KNO_3 at 25° is reduced from −8170 cal. at x = 0 to, e.g., −6533 at x = 56.40 of KOH or to −4774 at x = 40.07 of $Ca(NO_3)_2$. For KNO_3 the alteration of Q increases from KOH to KCl, KBr, KI, $NaNO_3$, KNO_3, $AgNO_3$, $Ca(NO_3)_2$, and $Ba(NO_3)_2$. The alteration of Q of $NaNO_3$ gives the similar series NaCl < NaBr < NaI < $Ca(NO_3)_2$ < $Ba(NO_3)_2$. For NaCl the series is $MgCl_2$ < LiCl < $CaCl_2$ < $BaCl_2$, and for KCl $MgCl_2$ < NaCl < KNO_3. These ionic series agree with that of the effects of ions on the structure of water. The decrease of the neg. heat of solution by salts is at 75° smaller than at 25°; e.g., Q of KNO_3 at x = 40.00 of KCl is −6531 (against −8170 in H_2O) at 25° and −6133 (against 6928 in H_2O) at 75°. The decrease of the endothermal effect is attributed to the change of the structure of H_2O by salt, and its increase (e.g., that of Q of KCl by LiCl at 75°) to a competition for water in the course of the hydration of the ions. The hydration effect is relatively more important the higher the temp.

I. I. Bikerman

VOSKRESENSKAYA, N. K.

USSR/Chemistry - Systems, Ternary Jun, 1947
Chemistry - Solubility

"The Thermodynamics of Solubility in Ternary Aqueous Salt Systems," N. K. Voskresenskaya, G. N. Yankovskaya, 9 pp

"Zhur Fiz Khim" Vol XXI, No 6, pp 749-57.

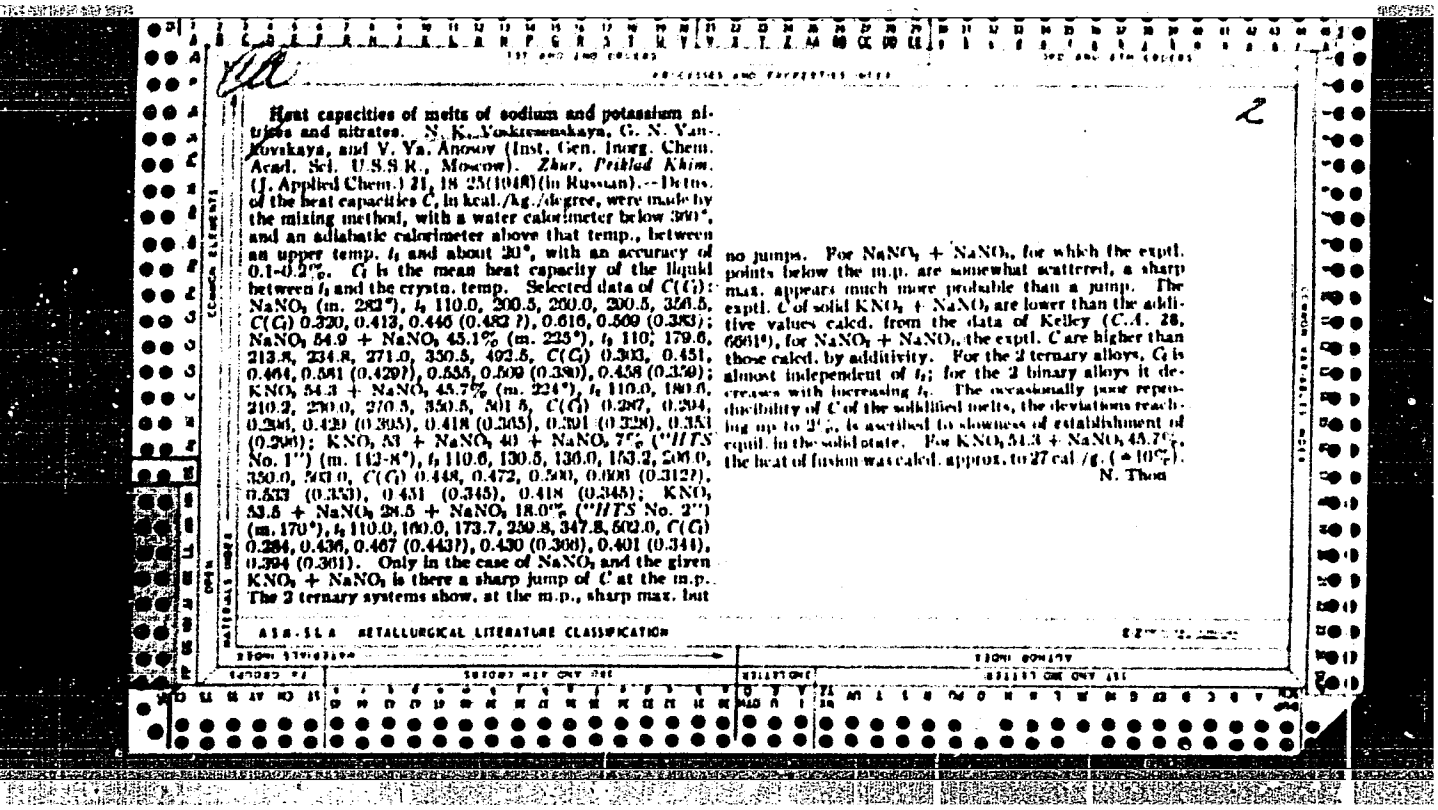
Contains graphs, tables of results and mathematical formulae for determining the thermodynamics of solubility of ternary aqueous salt systems.

14T112

VOSKRESENSKAYA, N.P.

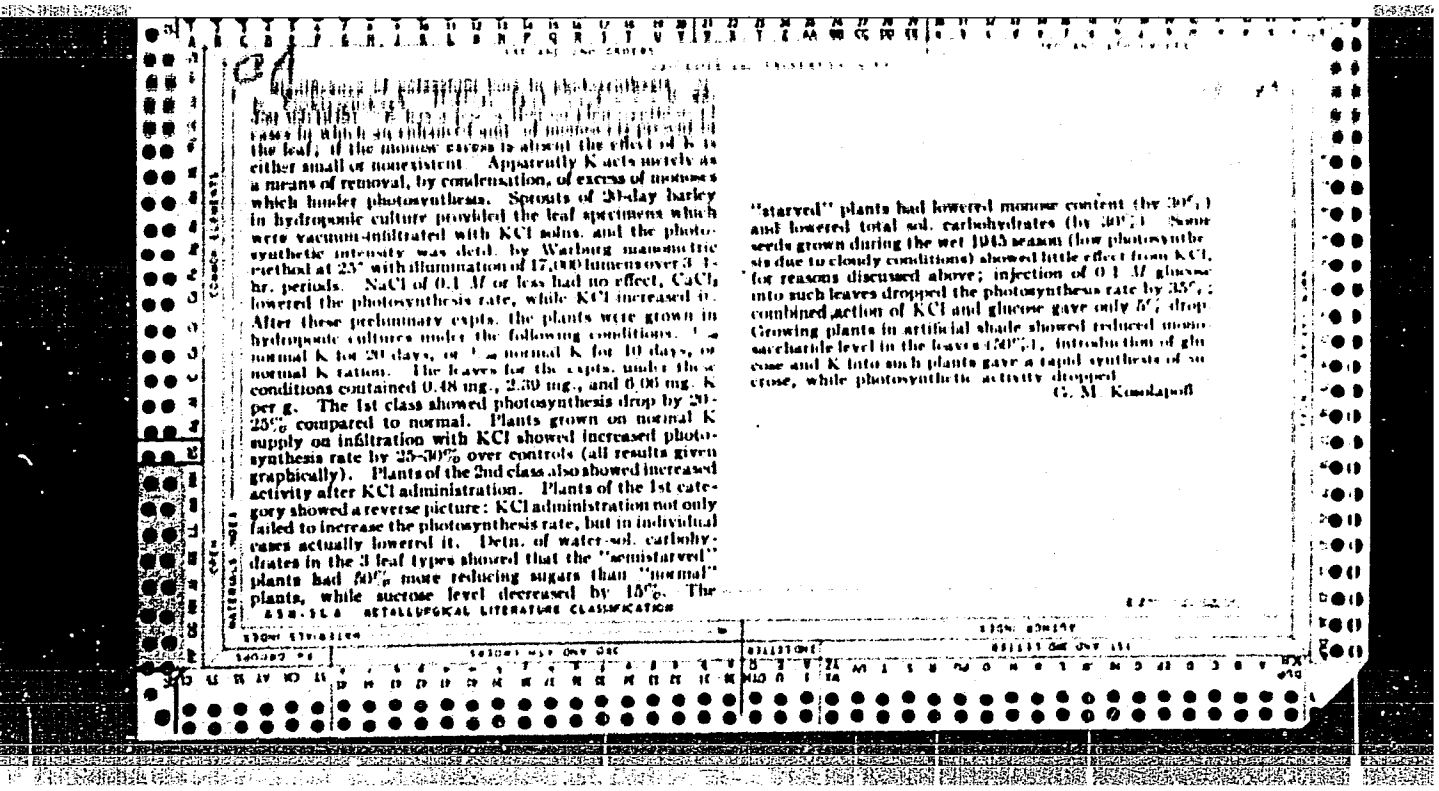
Effect of cations of potassium, sodium, and calcium on the intensity of photosynthesis. Trudy Inst.fiziol.rast. 6 no.1:53-68 '48.
(MLRA 9:9)

1.Institut fiziologii rasteniy imeni K.A.Timiryazeva AN SSSR.
(Photosynthesis) (Cations)



Heat capacities of melts of sodium and potassium nitrates and nitrates. N. K. Voskresenskaya, G. N. Yanovskaya, and V. Ya. Anosov (Inst. Gen. Inorg. Chem. Acad. Sci. U.S.S.R., Moscow). *Zhur. Prikład Khim.* (J. Applied Chem.) 21, 18-25(1948)(in Russian).--Detns. of the heat capacities C, in kcal./kg./degree, were made by the mixing method, with a water calorimeter below 300°, and an adiabatic calorimeter above that temp., between an upper temp. t_1 and about 20°, with an accuracy of 0.1-0.2%. C_1 is the mean heat capacity of the liquid between t_1 and the crystn. temp. Selected data of $C(C_1)$: $NaNO_3$ (m. 282°), t_1 110.0, 200.5, 260.0, 300.5, 356.5, $C(C_1)$ 0.320, 0.413, 0.446 (0.482 ?), 0.616, 0.569 (0.383); $NaNO_3$ 54.9 + $NaNO_2$ 45.1% (m. 225°), t_1 110, 179.6, 213.8, 234.8, 271.0, 330.5, 492.5, $C(C_1)$ 0.303, 0.451, 0.464, 0.581 (0.4297), 0.555, 0.509 (0.390), 0.458 (0.359); KNO_3 54.3 + $NaNO_3$ 45.7% (m. 224°), t_1 110.0, 180.6, 210.2, 270.0, 270.5, 350.5, 501.5, $C(C_1)$ 0.297, 0.394, 0.396, 0.429 (0.395), 0.418 (0.365), 0.391 (0.328), 0.353 (0.296); KNO_3 53 + $NaNO_2$ 40 + $NaNO_3$ 7% ("*ITS* No. 1") (m. 142-8°), t_1 110.6, 130.5, 136.0, 153.2, 200.0, 350.0, 503.0, $C(C_1)$ 0.448, 0.472, 0.500, 0.900 (0.3122), 0.533 (0.353), 0.451 (0.345), 0.418 (0.345); KNO_3 53.5 + $NaNO_2$ 28.5 + $NaNO_3$ 18.0% ("*ITS* No. 2") (m. 170°), t_1 110.0, 160.0, 173.7, 259.8, 347.8, 502.0, $C(C_1)$ 0.284, 0.436, 0.467 (0.443?), 0.430 (0.368), 0.401 (0.344), 0.394 (0.361). Only in the case of $NaNO_3$ and the given KNO_3 + $NaNO_3$ is there a sharp jump of C at the m.p. The 2 ternary systems show, at the m.p., sharp max. but no jumps. For $NaNO_3$ + $NaNO_2$, for which the exptl. points below the m.p. are somewhat scattered, a sharp max. appears much more probable than a jump. The exptl. C of solid KNO_3 + $NaNO_3$ are lower than the additive values calcd. from the data of Kelley (*C.A.* 28, 6661⁹), for $NaNO_3$ + $NaNO_2$, the exptl. C are higher than those calcd. by additivity. For the 2 ternary alloys, C_1 is almost independent of t_1; for the 2 binary alloys it decreases with increasing t_1. The occasionally poor reproducibility of C of the solidified melts, the deviations reaching up to 2%, is ascribed to slowness of establishment of equil. in the solid state. For KNO_3 54.3 + $NaNO_3$ 45.7%, the heat of fusion was calcd. approx. to 27 cal./g. (± 10%).

N. Thon



cases in which an inhibited uptake of minerals is present in the leaf, if the mineral excess is absent the effect of K is either small or nonexistent. Apparently K acts merely as a means of removal, by condensation, of excess of minerals which hinder photosynthesis. Sprouts of 20-day barley in hydroponic culture provided the leaf specimens which were vacuum-infiltrated with KCl solns. and the photosynthetic intensity was detd. by Warburg manometric method at 25° with illumination of 17,000 lumens over 3 1-hr. periods. NaCl of 0.1 *M* or less had no effect, $CaCl_2$ lowered the photosynthesis rate, while KCl increased it. After these preliminary expts. the plants were grown in hydroponic cultures under the following conditions: [illegible] normal K for 20 days, or [illegible] normal K for 10 days, or normal K ration. The leaves for the expts. under these conditions contained 0.48 mg., 2.30 mg., and 6.00 mg. K per g. The 1st class showed photosynthesis drop by 20-25% compared to normal. Plants grown on normal K supply on infiltration with KCl showed increased photosynthesis rate by 25-30% over controls (all results given graphically). Plants of the 2nd class also showed increased activity after KCl administration. Plants of the 1st category showed a reverse picture: KCl administration not only failed to increase the photosynthesis rate, but in individual cases actually lowered it. Detn. of water-sol. carbohydrates in the 3 leaf types showed that the "semistarved" plants had 50% more reducing sugars than "normal" plants, while sucrose level decreased by 15%. The "starved" plants had lowered moisture content (by 30%) and lowered total sol. carbohydrates (by 30%). Some seeds grown during the wet 1945 season (low photosynthesis due to cloudy conditions) showed little effect from KCl, for reasons discussed above; injection of 0.1 *M* glucose into such leaves dropped the photosynthesis rate by 35%; combined action of KCl and glucose gave only 5% drop. Growing plants in artificial shade showed reduced monosaccharide level in the leaves (20%); introduction of glucose and K into such plants gave a rapid synthesis of sucrose, while photosynthetic activity dropped.

G. M. Kondratieff

VOSKRESENSKAYA, N. K.

22330 Voskresenskaya, N. K. Diagrammy udel'noy teployemkosti vodnykh troynykh solyanykh sistem. izvestiya sektora fiz. - khim analiza (in-t obshchey i neorgan khimii im. kurnakova), T. XVII, 1949. S. 307-11- Bibliogr: 12 Nazv

SO: LETOPIS' No. 30, 1949

VOSKRESENSKAYA, N.K.

Direction of the exchange reaction in salt systems. Izv. Sekt. fiz. khim. anal. 18:160-171 '49. (MLRA 11:4)

1. Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova AN SSSR.

(Systems (Chemistry)) (Thermochemistry)

VOSKRESENSKAYA, N.K.

Work of the physico-chemical analysis section at the N.S. Kurnakov Institute of General and Inorganic Chemistry of the Academy of Sciences of the USSR for the year 1946-1947. Izv. Sekt. fiz. khim. anal. 18:274-276 '49. (MLRA 11:4)

(Chemistry)

VOSSKRESENSKAYA, N. K.

PA 193T16

USSR/Chemistry - Analysis, Physicochemical May/Jun 51

"General Problems of Physicochemical Analysis," N. K. Vosskresenskaya, Moscow

"Uspekh Khim" Vol XX, No 3, pp 365-371

Summarizes latest USSR developments in physicochem analysis by brief abstracts from recent (1948 - 1950) periodical literature (principally from "Iz Sektora Fiziko-khim Analiza" (News of the Sector of Physicochemical Analysis)). Subjects covered include geometric representation of systems, analysis of microdispersed solid systems, quant

193T16

USSR/Chemistry - Analysis, Physicochemical (Contd) May/Jun 51

phase analysis, pressure analysis, study of equil using microcinematography, and study of structure of org mol compds by fusibility diagrams and X-rays.

193T16

N. K. Voskreseskaya

Nov. 51 PA 194T44

USSR/Chemistry - Lithium and Fluorine Compounds Nov 51

"Heat of Formation of Double Salts $Li_2SO_4 \cdot K_2SO_4$, $BaF_2 \cdot BaCl_2$, and $SrF_2 \cdot SrCl_2$," N. K. Voskreseskaya, G. A. Bukhalova, Inst of Gen and Inorg Chem imeni N. S. Kurnakov, Acad Sci USSR

"Zhur Obshch Khim" Vol XXI, No 11, pp 1957-1961

Detd by expt heat of interaction of salts which form subject double salts. Calcd heat of formation of these double salts from elements.

194T44

VOSKRESENSKAYA, N. K.

USSR/Chemistry - Heat Effect Dec 51

"The Heat Effects of the Double Decomposition of Salts Having Identical Valencies of Ions of the Same Sign," N. K. Voskresenskaya, Inst Gen and Inorg Chem, Acad Sci USSR

"Dok Ak Nauk SSSR" Vol LXXXI, No 4, pp 585-588

Gives eqs for calcg the heat effect of the 4 possible types of double decompn of salts having ions with valencies up to 2. Heat effect increases as the difference between radii of large and small ions of the same sign in the system increases. Reaction is exothermic when large cations combine with large anions and small cations with small anions.

202T21

~~KASHCHEYEV G. N.~~ VOSKRESENSKAYA N. K.

Category: USSR / Physical Chemistry
Thermodynamics. Thermochemistry. Equilibrium. Physico-chemical analysis. Phase transitions. B-8

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29940

Author : Voskresenskaya N. K., Kashcheyev G. N.
Inst : Institute of General and Inorganic Chemistry, Academy of Sciences USSR
Title : Solubility of Metal Oxides in Fused Salts

Orig Pub: Izv. Sektora fiz.-khim. analiza IONKh AN SSSR, 1956, 27, 255-267

Abstract: By the previously described method (RZhKhim, 1955, 36865) a study has been made of the solubility (m) of MgO (I) (99% by weight), CaO (99.16%) (II), ZnO (100.0%) (III), Cr_2O_3 (100.0%) (IV), and of a mixture of CuO and Cu_2O (98% CuO) (V) in fused MCl and M_2SO_4 (M -- Li, Na, K) at four temperatures within the temperature interval of 700-1200°. It was found that with increase in temperature m increases (in the case of I no change could be detected) and depends to a greater extent upon the nature of the oxides than on the nature of

Card : 1/2

VOSKRESENSKAYA, N. K.

Kurnakov, Nikolai Semenovich, 1866-1941.

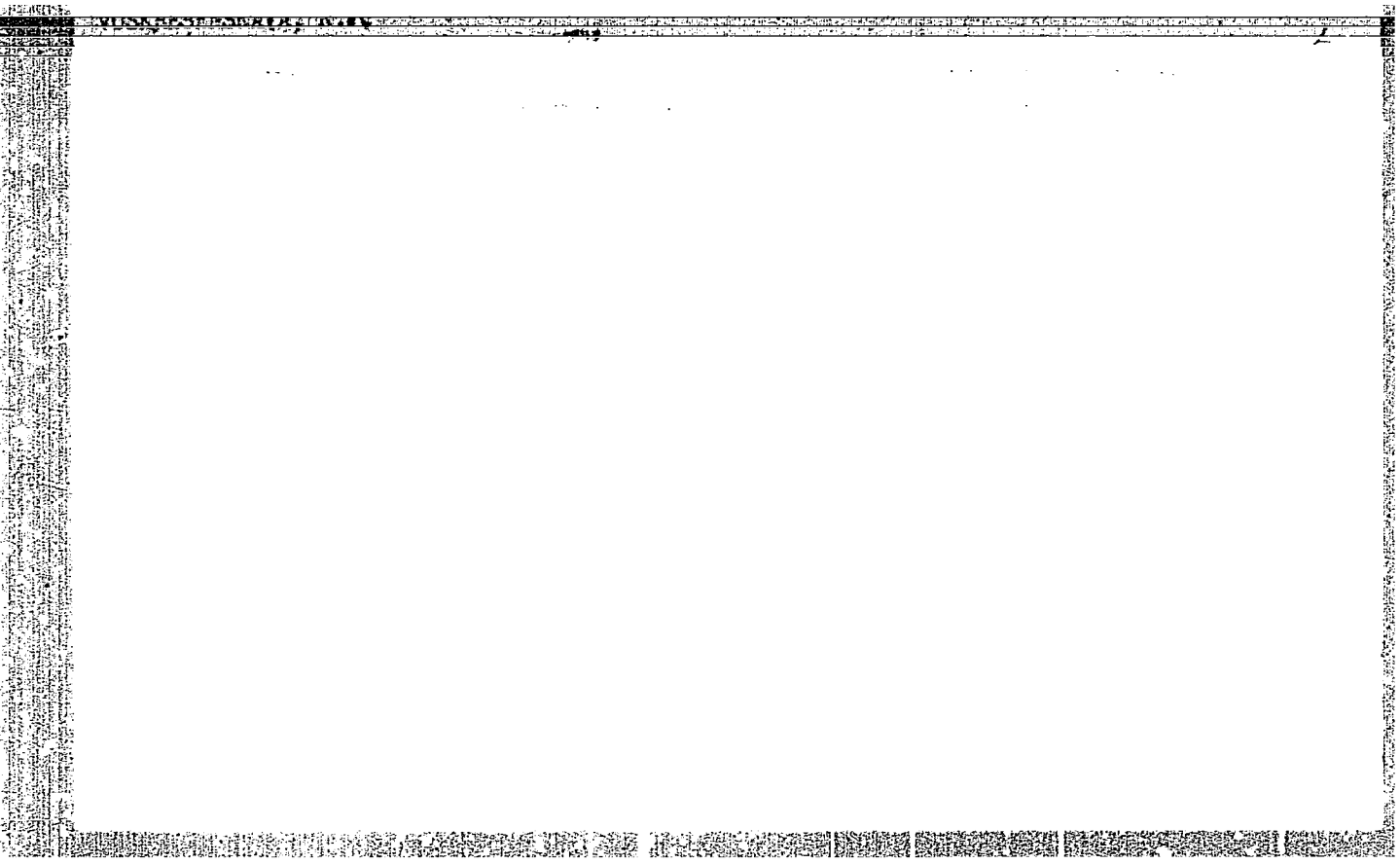
Investigations by N. S. Kurnakov and his school of the chemistry of molten salts. Usp. khim. 21 no. 9, 1952.

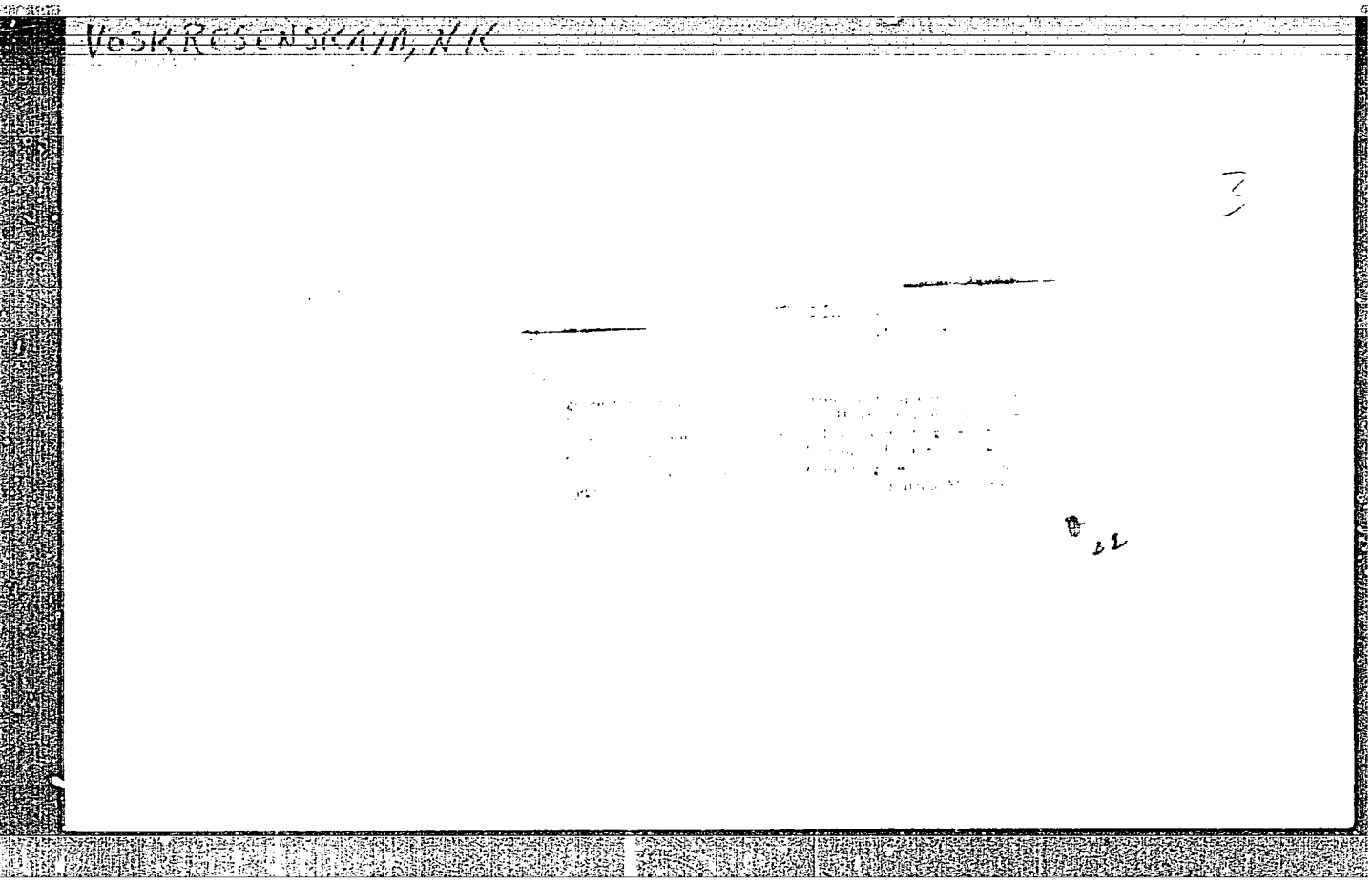
9. Monthly List of Russian Accessions, Library of Congress, December 1952 Uncl.

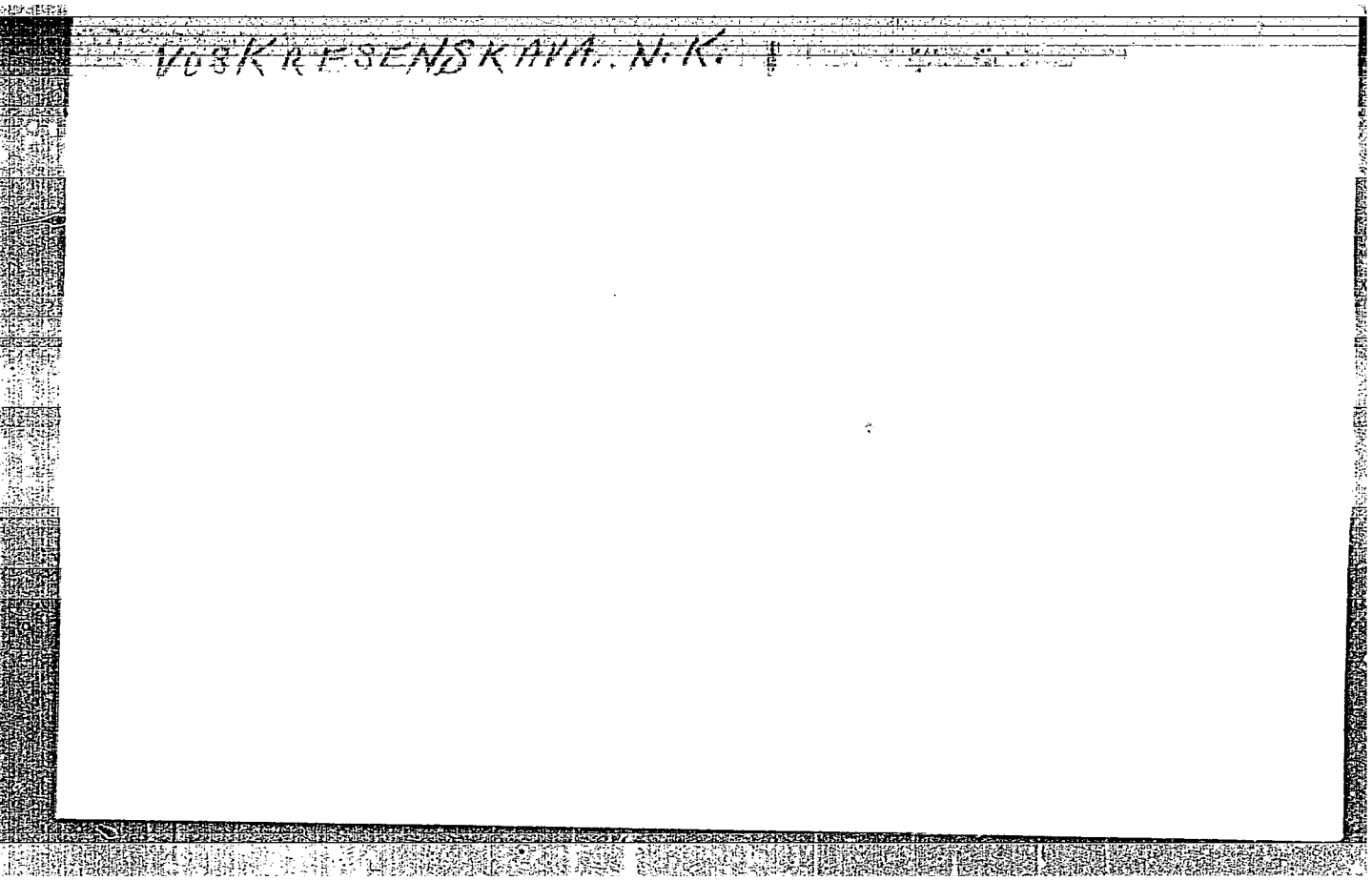
VOSKRESENSKAYA, N.K.; PATSUKOVA, N.N.

Heats of formation of the double salts $KCl.ZnSO_4$, $KBr.ZnSO_4$, and $KI.ZnSO_4$. Doklady Akad. Nauk S.S.S.R. 87, 219-21 '52. (MLRA 5:11) (CA 47 no.13:6241 '53)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova, Akademiya nauk S.S.S.R., Moscow.







Solubility of barium oxide in fused salts. N. K. Voskresenskaya

[illegible] the soly. of BaO was detd. in fused LiCl, NaCl, KCl, Li_2SO_4, and Na_2SO_4 at 4 temps. Temps. for LiCl expts. were in the range 700–1000°, for others in the range 900–1300°. The greatest soly. of BaO was in LiCl; in order of decreasing dissolving action were Li_2SO_4, NaCl and Na_2SO_4, KCl. The order of chlorides as solvents corresponded to Semenchenko's theory (*C.A.* **42**, 3240c) of real soins.

Burilla Mayuda

Voskresenskaya N.K

USSR/Chemical Technology./Chemical Products and their Application. J-12
Glass. Ceramics. Building Material.

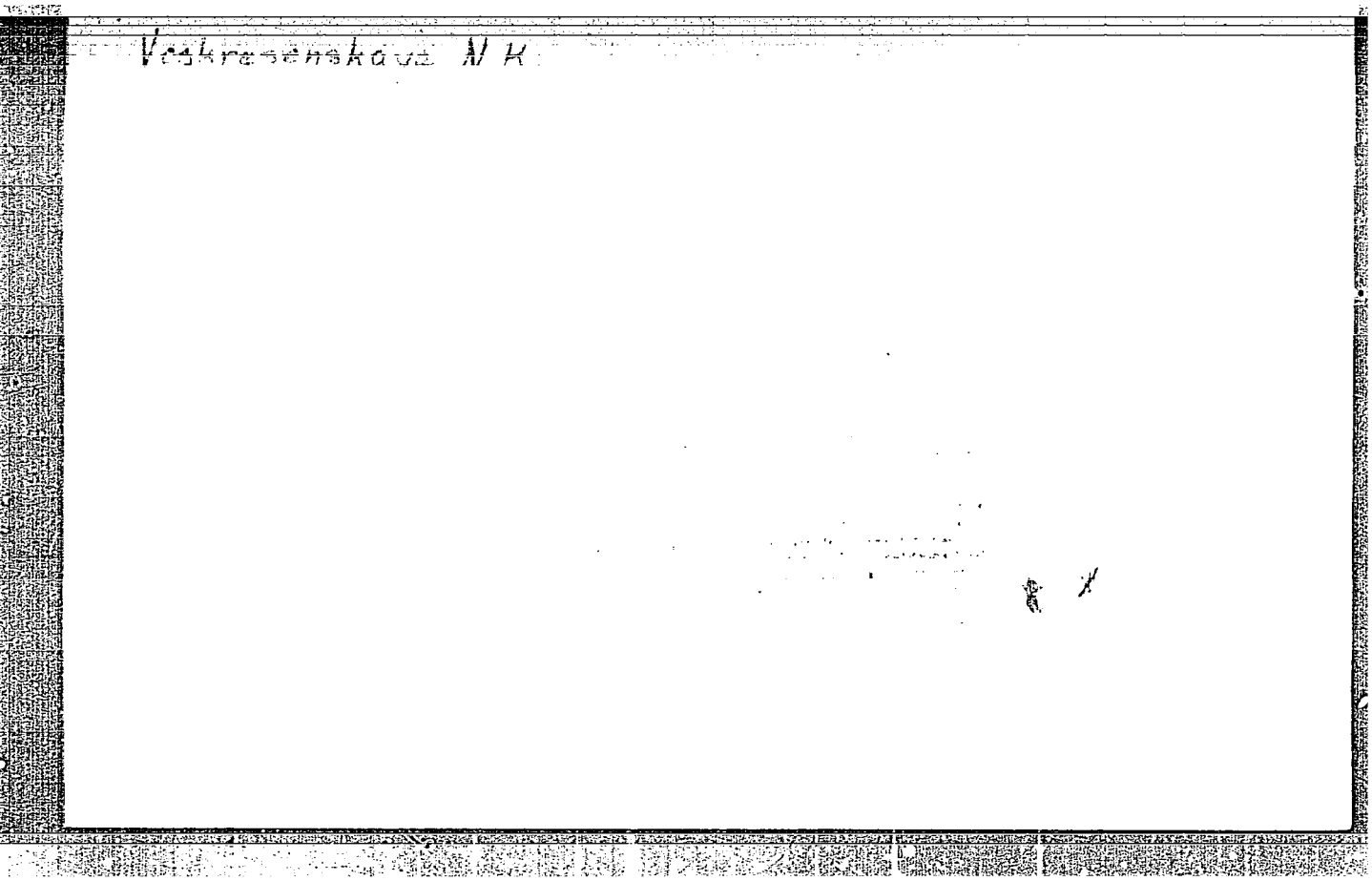
Abs Jour: Referat Zh.-Kh., No 8, 1957, 27624

Author : N.K. Voskresenskaya.
Inst :
Title : Microheterogeneity of Fused Salts.

Orig Pub: vSb: Stroyeniye Stekla. M.-L., AN SSSR, 1955, 315-316.

Abstract: It is pointed out that in order to understand the nature of glass as of an undercooled liquid, it is useful to take into consideration the conclusions and relations following from the theory of solutions. See RZhKhim, 1957, 1565 and 5163.

Card : 1/1



VOSKRESENSKAYA, N.K.; BANASHEK, Ye.I.

Thermodynamic properties of the anhydrous double salt $Li_2SO_4.K_2SO_4$ at high temperatures. Izv.Sekt.fiz.-khim.anal. 26:111-116 '55. (MIRA 8:9)

1. Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova AN SSSR. (Thermochemistry) (Salts, Double)

VOSKRESENSKAYA, N.K.; PATSUKOVA, N.N.

Heats of formation of double salts $MeIHI \cdot ZnSO_4$. Izv.Sekt.fiz.-khim. anal. 26:117-122 '55. (MIRA 8:9)

1. Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova AN SSSR. (Heat of formation) (Salts, Double)

VOSKRESENKAYA, N. K.

USSR/ Chemistry - Interchange reaction

Card 1/1 Pub. 22 - 23/51

Authors : Voskresenskaya, N. K.

Title : The trend of exothermal interchange reactions of the 2 AX + BY_2 = 2 AY + BX_2 type

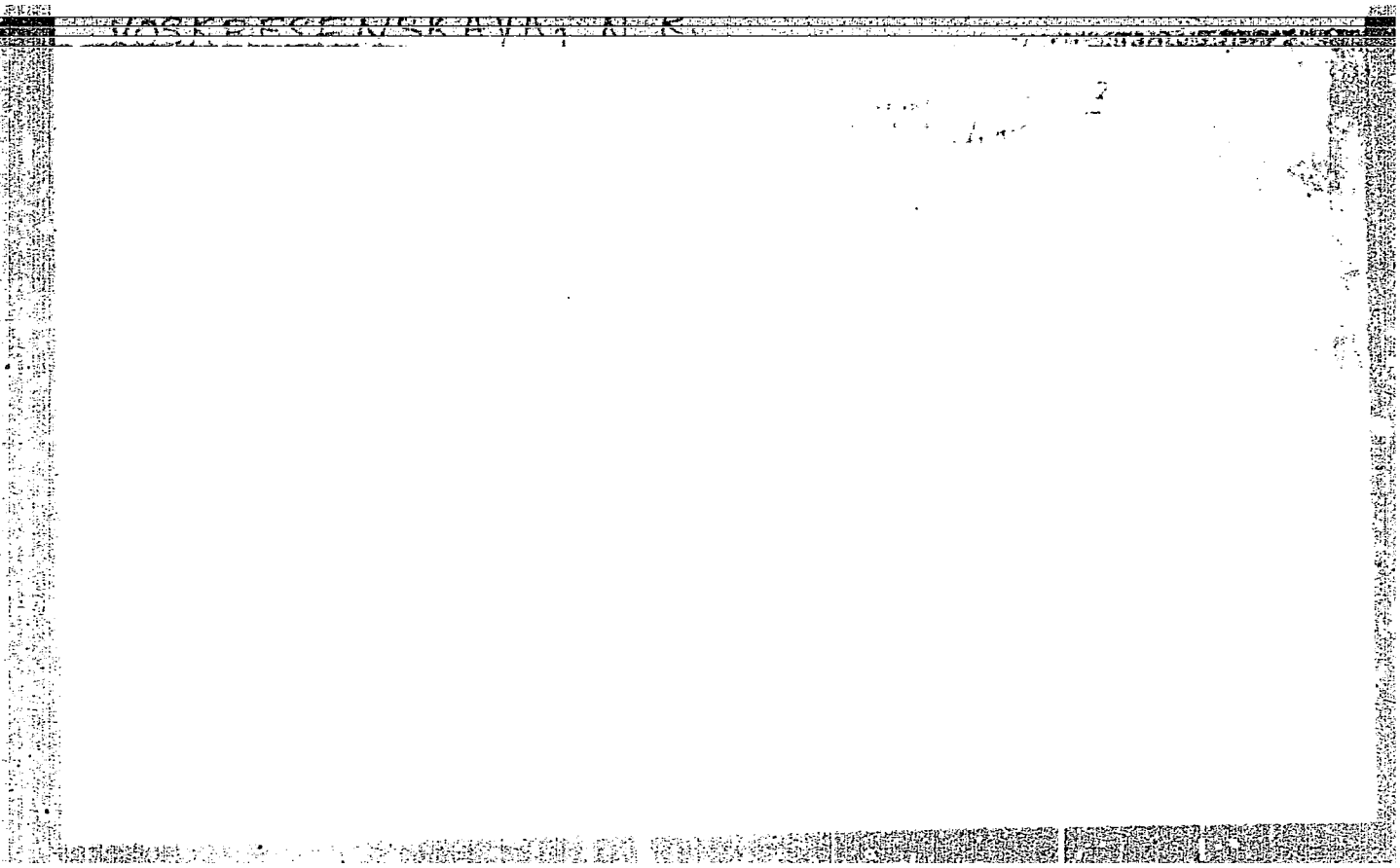
Periodical : Dok. AN SSSR 101/1, 89-91, Mar 1, 1955

Abstract : General terms were established which connect the tendencies of exothermal interchange reactions with the characteristics of ions at a different valence of the cations. The thermal effect of the reaction is considered as the algebraic sum of lattice energies of the four ion salts investigated. It was observed that exothermal reactions tend toward ion compounds with possibly closer radii. The thermal effect of the reaction was determined only by the radii of the cations; the dependence of the thermal effect of anion radii is explained. Three USSR references (1943 and 1951).

Institution : Acad.of Sc., USSR, The N. S. Kurnakov Institute of Gen. and Inorg. Chem.

Presented by : Academician G. G. Urazov, May 6, 1954

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001861020016-6"



VOSKRESENSKAYA, N.K.

USSR/Atomic and Molecular Physics - Statistical Physics. Thermo- D-3
dynamics.

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 8993

Author : Voskresenskaya, N.K., Sokolov, V.A., Banashek, Ye.I. Shmidt, N.Ye.
Title : Thermodynamic Properties of Lithium Fluoride

Orig Pub : Izv. Sektora fiz.-kim. analiza IONKh AN SSSR, 1956, 27, 233-238

Abstract : The specific heat C_p of crystalline LiF is determined in the temperature range from 317 to 658° K using a method previously described (Sokolov, V.A., Zh. tekhn. fiziki, 1948, 18, 813) (nine points; error ± 0.7%). The data obtained fit, within an average error of 0.25%, the relation C_p (cal/°. mol) = 10.32 + 3.90 x 10^{-3} T -1.36 x 10^{5} x T^{-2}. A measurement was made of the enthalpy of LiF in the interval 673 -- 1410° K. The results are expressed by the equations: $H_T - H_{293.16}$(cal/mol) = 10.00 T + 2.217 x $10^{-3}T^2$ + 122176 T -3539 (solid phase) and $H_T - H_{293.16}$ = 32 + 15.175 T (1128 -- 1410°K; liquid phase). ΔH_m = 6477, ΔS_m = 5.78 entropy units. The standard values are : $H_{298.16}$ = 1548 cal/mol and $S_{298.16}$ = 8.53 entropy units. The values of C_p, H, S and Z are calculated in the range 50 -- 1400°K and tabulated.

Card 1/1

VOSKRESENSKAYA, N. K.

Category: USSR / Physical Chemistry
Thermodynamics. Thermochemistry. Equilibrium. Physico-chemical analysis. Phase transitions. B-8

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29940

Author : Voskresenskaya N. K., Kashcheyev G. N.
Inst : Institute of General and Inorganic Chemistry, Academy of Sciences USSR
Title : Solubility of Metal Oxides in Fused Salts

Orig Pub: Izv. Sektora fiz.-khim. analiza IONKh AN SSSR, 1956, 27, 255-267

Abstract: By the previously described method (RZhKhim, 1955, 36865) a study has been made of the solubility (m) of MgO (I) (99% by weight), CaO (99.16%) (II), ZnO (100.0%) (III), Cr_2O_3 (100.0%) (IV), and of a mixture of CuO and Cu_2O (98% CuO) (V) in fused MCl and M_2SO_4 (M -- Li, Na, K) at four temperatures within the temperature interval of 700-1200°. It was found that with increase in temperature m increases (in the case of I no change could be detected) and depends to a greater extent upon the nature of the oxides than on the nature of

Card : 1/2 -52-

Category: USSR / Physical Chemistry
Thermodynamics. Thermochemistry. Equilibrium. Physico-chemical analysis. Phase transitions. B-8

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29940

the solvents. Magnitude of M (irrespective of temperature) increases in the series IV, I, III, V, II; dissolving power of the salts increases in the series K, Na, Li. With several exceptions in the case of I and III, m increases when the ratio of generalized moments of cathion of the oxide and solvent approaches unity. A correlation has been noted between m and energy of oxide lattice. The difference is pointed out, as concerns solvent properties for oxides, between MCl and M_2SO_4 on one hand, and cryolite, on the other.

Card : 2/2 -53-

ANOSOV, Viktor Yakovlevich; VOSKRESENSKAYA, N.K., prof., doktor khim. nauk, otv.red.; BELOVA, V.I., red.izd-va; YEGOROVA, N.F., tekhn.red.

[Short introduction to physicochemical analysis; manual for preliminary study] Kratkoe vvedenie v fiziko-khimicheskii analiz; posobie dlia pervonachal'nogo oznakomleniia. Moskva, Izd-vo Akad.nauk SSSR, 1959. 120 p. (MIRA 12:11)
(Chemistry, Physical and theoretical)
(Chemistry, Analytical)

VOSKRESENSKAYA, N.K.

Fusibility of anhydrous salt systems. Itogi nauki: Khim.nauki 4:141-151 '59. (MIRA 13:4)
(Salts) (Systems (Chemistry))

VOSKRESENSKAYA, N.K.

Thermodynamic properties of fused salts. Itogi nauki: Khim. nauki 4:152-159 '59. (MIRA 13:4)
(Salts)

VOSKRESENSKAYA, N.K.

Density, molar volumes, viscosity, electric conductivity, surface tension, and other properties of homogeneous fused salt systems. Itogi nauki: Khim.nauki 4:160-177 '59. (MIRA 13:4)

(Salts) (Systems(Chemistry))

SOV/78-4-9-1/44

5(0)

AUTHORS: Voskresenskaya, N. K., Teytel'baum, B. Ya.

TITLE: Nikolay Aleksandrovich Trifonov (Obituary)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol. 4, Nr 9, pp 1945-1951 (USSR)

ABSTRACT: On December 9, 1958, in Kazan', Professor N. A. Trifonov died. He was born in Peterburg on February 23, 1891, completed his education at the secondary school in Novgorod in 1909, and studied at the Peterburgskiy politekhnicheskiy institut (Peterburg Polytechnic Institute) under the guidance of N. S. Kurnakov, V. A. Kistyakovskiy, P. P. Fedot'yev, A. F. Ioffe and A. A. Baykov). His diploma work treated the subject of heterogeneous equilibria. From 1917 to 1919 he was Head of the Laboratory for Chemical Preparations of the Petrogradskiy oblastnoy komitet po snabzheniyu Armii (Petrograd oblast' Committee for the Supply of the Army). Since 1919 Trifonov worked at Saratov University, first at the Chair of Inorganic and Physical Chemistry, later as Head Assistant at the Chair of Physics under Professor K. A. Leont'yev, a pupil of P. P. Lebedev. Trifonov gathered a group of students

Card 1/4

Nikolay Aleksandrovich Trifonov (Obituary)

(N. K. Voskresenskaya, S. I. Cherbov, T. A. Samartsev, R. V. Mertslin, K. I. Samarina, P. D. Dankov), who were working at various educational establishments or laboratories in Saratov, and who devoted their free time to work under Trifonov. Together with the physicist P. V. Golubkov and the chemist V. Ya. Anosov the analysis of liquid systems was developed. Since 1928 Trifonov was Head of the Chair of Inorganic and Physical Chemistry at Perm' University. From 1933 to 1939 Trifonov worked at the Institutes for Highway Construction of the GUShOSSDOR of the NKVD (Glavnoye upravleniye shosseynykh dorog - Main Administration of Highways), first in Moscow, and since 1937 in Saratov. Since 1939 he was Head of the Chair of Physical and Colloid Chemistry of Rostov University, and in 1940 defended his doctoral thesis. The subject of this thesis was the physico-chemical analysis of binary liquid systems on the basis of the shape of the isothermal lines of the surface tension. It had been written at the Institut obshchey i neorganicheskoy khimii Akademii nauk SSSR (Institute of General and Inorganic Chemistry of the Academy of Sciences, USSR). Since 1944 Trifonov was

SOV/78-4-9-1/44

Nikolay Aleksandrovich Trifonov (Obituary)

Head of the Chair of Physical and Colloid Chemistry at Kazan' University and the Department of Physical Chemistry of the Kazan' Branch of the AS USSR. Together with coworkers he made a detailed investigation of the systems nitric acid - acetic acid (with S. P. Miskidzh'yan), phosphorus trichloride - benzaldehyde (with F. F. Fayzullin), and dioxane - water (with M. Z. Tsypin). Together with R. V. Mertslin he investigated the temperature dependence of the surface tension of solutions, and illustrated the equations given by K. M. Stakhorskiy for normal binary systems . With R. V. Mertslin, A. T. Khalezova, G. K. Aleksandrov et al he studied the chemical influence of the isothermal lines of the surface tension. Trifonov's dissertation formed the basis for the research work of his school: I. F. Taykov, K. N. Kovalenko, O. A. Osipov, V. F. Dedushenko, B. Ya. Teytel'baum et al. . In connection with the studies of P. A. Rebinder on the adsorptive lowering of hardness Trifonov, together with Ye. Ye. Gorbovskiy, N. P. Chernyak, and other coworkers, discovered the effect of increasing hardness by physico-chemi-

Card 3/4

Nikolay Aleksandrovich Trifonov (Obituary)

cal methods. Trifonov devoted his time to the extension of his main field of investigation, the analysis of fluid systems, by inclusion of the thermodynamical properties. This was partly realized by his pupils N. L. Yaryy-Agayev (heats of mixing), and M. P. Dianov (boiling points) at a time, when Trifonov was already seriously ill. Trifonov wrote more than 100 papers . 50 of his pupils and coworkers attained scientific degrees. Finally, a list of the scientific publications and manuscripts is given. There are 1 figure and 92 Soviet references.

AUTHORS: Voskresenskaya, N. K., Berul', S. I.

S/078/60/005/03/026/048
B004/B015

TITLE: Thermal Stability of the Easily Meltable Mixture of Nitrites and Nitrates of Sodium and Potassium

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol 5, Nr 3, pp 654-659 (USSR)

ABSTRACT: The authors investigated (Ref 1) the behavior of the nitrite-nitrate mixture (40 weight% of $NaNO_2$, 53 weight% of KNO_3, 7 weight% of $NaNO_3$), which is used as a coolant, after 720 hours of heating in various metallic vessels (Ag,Fe or various types of steel) and found that all metals react with the nitrate ions. The present paper reports on seven further experiments, the first of which was carried out in the presence of water vapor, the others, however, under exclusion of water vapor. Vessels made of Armco iron and steel of the types 12MFKh and Kh18N25S2 were investigated. The authors refer to similar experiments carried out by M. I. Ravich and Ye. V. Frolova (Ref 2), as well as to the publications that appeared after that mentioned in reference 1. Table 1 shows the analysis of the nitrite-nitrate melt. Tables 2-4 give the experimental results.

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Table 5 shows the change of the NO_2^- and NO_3^- content, and table 6 the same found in earlier experiments in the presence of water vapor. In all experiments the melt was found to show an increasing nitrate- and a decreasing nitrite content. The experiments carried out in vessels with walls of poor oxidizing properties(oxidizing steel vessel of the type 12MFKh, vessels made of steel of the type Kh18N25S2 with different surface condition) indicated a partial oxidation due to the atmospheric oxygen entering the apparatus. This additional oxidation has, however, no essential influence upon the increase in NO_3^- and the decrease in NO_2^- . A comparison of the results obtained in the course of this investigation with those of reference 1 shows the considerable effect of water vapor. Only in the presence of water vapor nitrates are reduced by metals. The experiment made with the Armco iron vessel with oxidized surface in the presence of water vapor resulted in a considerably smaller decomposition of the nitrate-nitrite mixture than in vessels with clean metallic surface, which again shows the role of metals. The authors refer to Ye. I. Gurovich and G. P. Shtokman (Ref 7). L. A. Domogatskikh took part in the experiments. There are 6 tables and 7 references, 3 of which are Soviet.

Thermal Stability of the Easily Meltable Mixture of Nitrites and Nitrates of Sodium and Potassium

S/078/60/005/03/026/048
B004/B015

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR
(Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences, USSR)

SUBMITTED: November 12, 1958

Card 3/3

S/078/60/005/009/013/017
B015/B064

AUTHORS: Voskresenskaya, N. K., Budova, G. P.

TITLE: Interaction of Nb_2O_5 With the Chlorides of the Alkaline and Alkaline-earth Metals

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 9, pp. 2051-2055

TEXT: The interaction of Nb_2O_5 with the chlorides of Li, Na, K, Cs, Ca, and Ba was investigated by the method of isothermal dissolution (Ref. 2) in the nitrogen current at an experimental time of between one and five hours. The experiments were conducted in the ТГ-3 (TG-3) furnace, with the temperature being controlled with an electronic potentiometer of the type ЭПД-17 (EPD-17). Niobium was colorimetrically determined by a method developed by N. P. Alimarin and R. L. Podval'naya with a ФЭК-М (FEK-M) photocolorimeter. Nb_2O_5 was found (Table 1) to go over into the melt at 1000°-1200°C, i.e., most intensively in $CaCl_2$, less in $BaCl_2$ and KCl, and

Card 1/2

Interaction of Nb_2O_5 With the Chlorides of the Alkaline and Alkaline-earth Metals

S/078/60/005/009/013/017
B015/B064

least in NaCl. Nb_2O_5 dissolves at 700°-900°C only in the $CaCl_2$ melt. X-ray analyses of the solid phases obtained after reaction (after the removal of the salts with water) showed that no niobium pentoxide is present. The reaction with NaCl led to the formation of $NaNbO_3$, or Na_3NbO_4 as was proved by X-ray data (Table 2) in accordance with the data given by A. V. Lapitskiy and V. I. Spitsyn. $NaNbO_3$ and Na_3NbO_4 were found to be little soluble in NaCl. In conclusion, V. G. Kuznetsov is thanked for his assistance. There are 2 tables and 11 references: 7 Soviet, 3 US, and 1 French.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR
(Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences, USSR)

SUBMITTED: June 10, 1959

Card 2/2

VOSKRESENSKAYA, N.K.

Nikolai Semenovich Kurnakov; on the 100th anniversary of his birth.
Zhur. fiz. khim. 34 no.12:2625-2629 D '60. (MIRA 14:1),
(Kurnakov, Nikolai Semenovich, 1860-1941)

VOSKRESENSKAYA, N.K.; YEVSEYEVA, N.N.; BERUL', S.I.; VERESHCHETINA, I.P.; TRAVIN, N.V., red. izd-va; BLEYKH, E.Yu., tekhn. red.

[Reference book on the fusibility of systems of anhydrous inorganic salts]Spravochnik po plavkosti sistem iz bezvodnykh neorganicheskikh solei. Sost. N.K.Voskresenskaia i dr. Moskva. Vol.2. [Ternary, ternary reciprocal, and multicomponent systems] Sistemy troinye, troinye vzaimnye i bolee slozhnye. 1961. 585 p. (MIRA 14:7)

1. Akademiya nauk SSSR. Institut obshchey i neorganicheskoy khimii.
(Salts) (Systems (Chemistry)) (Melting points)

VOSKRESENSKAYA, N.K., doktor khim. nauk; YEVSEYEVA, N.N., kand. khim. nauk; BERUL', S.I.; VERESHCHETINA, I.P.; TRAVIN, N.V., red. izd-va; BLEYKH, E.Yu., tekhn. red.

[Manual on the fusibility of the systems consisting of anhydrous inorganic salts] Spravochnik po plavkosti sistem iz bezvodnykh neorganicheskikh solei. Sost. N.K.Voskresenskaia i dr. Moskva, Vol.1. [Binary systems] Dvoinye sistemy. 1961. 845 p. (MIRA 14:6)

1. Akademiya nauk SSSR. Institut obshchey i neorganicheskoy khimii. 2. Laboratoriya khimii i termodinamiki rasplavlennykh sred Instituta obshchey i neorganicheskoy khimii im. N.S.Kurnakov AN SSSR (for for all except Travin, Bleykh)
(Salts) (Systems (Chemistry))

S/078/62/007/004/009/016
B110/B101

AUTHORS: Voskresenskaya, N. K., Berul', S. I.

TITLE: Conversions of CeO_2, Nd_2O_3, Sm_2O_3 and their interaction with molten lithium- and potassium chlorides and sodium carbonate and sulfate

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 4, 1962, 850-855

TEXT: The interactions of three basic oxides: CeO_2, Nd_2O_3 and Sm_2O_3 with melts of chlorides, carbonates and sulfates were investigated. The heating curves of CeO_2, Nd_2O_3 and Sm_2O_3 and the X-ray patterns were recorded. The heating curve of untreated CeO_2 shows no deflection. The thermogram of $Nd_2O_3 \cdot 3H_2O$ showed heat effects at (1) 320-330°C, loss of 1.7 molecules $H_2O \longrightarrow NdO \cdot OH$, $(Nd_2O_3 \cdot H_2O)$, (2) 488°C, loss of 0.5 molecules $H_2O \longrightarrow Nd_2O_3 \cdot 0.5H_2O$, (3) 510-545°C, loss of 0.8 molecules $H_2O \longrightarrow \sim Nd_2O_3$. In the thermogram of the sample annealed at 400°C to constancy of weight,

Conversions of CeO_2, Nd_2O_3, ...

1 is absent, but a new effect appears at 700-765°C. 2 and 3 are shifted toward higher temperatures. An effect existed at 900°C for the sample dehydrated at 700°C, quickly heated to 1000°C and cooled again to room temperature. The X-ray patterns of samples cooled in air from (a) 700°C and (b) 1000°C, showed many lines corresponding to B-Nd_2O_3 (M. W. Shafer, R. Roy, see below) for a, and such corresponding to A-Nd_2O_3 for b. Lines corresponding to NdO·OH also appeared in a and b. In Sm_2O_3 there appeared: (1) an exothermal effect at 215-310°C, which corresponds to the transition from the amorphous into the crystalline state, (2) an endothermal one at 400-450°C and (3) an endothermal one at 615°C. In samples cooled from 500-600°C and 1000°C, B-Sm_2O_3 and SmO·OH were found. The rare earth oxides were isothermally saturated with salt melts at 800-1100°C in an electric furnace. The amount of ce ium in the liquid phase was determined colorimetrically according to Westwood and Mayer (see below). When heating CeO_2 for 4 hrs at 900 and 1000°C with KCl, only Ce traces enter the liquid phase; at 1100°C 0.0010% by weight Ce (0.0012% by weight CeO_2). Presumably the reaction proceeds as follows: $2\ CeO_2 = Ce_2O_3 + O$,

S/078/62/007/004/009/016
B110/B101

Conversions of CeO_2, Nd_2O_3, ...

Ce_2O_3 + 6 KCl = 2 $CeCl_3$ + 3 K_2O. Isothermal dissolving of CeO_2 in LiCl for 3 hrs at 1000°C resulted in 0.00030% by weight Ce (0.00036% by weight CeO_2) in the liquid phase. In KCl- and NaCl melts about 0.3 mole Nd_2O_3/100 mole and in LiCl melt ~0.2 mole Nd_2O_3/100 mole salt entered the liquid phase. Since Nd_2O_3 dissociates into five ions in dilute solutions, the values for KCl and NaCl are < 0.06 mole Nd_2O_3, for LiCl < 0.04 mole Nd_2O_3, which corresponds to $< 0.3\%$ by weight Nd_2O_3. Sm_2O_3 did not enter the liquid phase at all. A crushed mixture of Na_2CO_3 and CeO_2, corresponding to the composition Na_2Ce_3 was heated for 4, 24, 72 and 120 hrs at 800, 900, 1000, and 1100°C. Only in samples heated for 72 and 120 hrs at 1100°C, three very weak new lines appeared. When heating CeO_2 with Na_2SO_4 for 5 hrs at 1000 and 1100°, 0.198-0.200% Ce were determined colorimetrically and 0.036-0.38% by weight oxygen ions by titration. The bottom phases showed three to four very weak new lines. When heating for 5 hrs at 1100°C, no interaction was found between Na_2SO_4 and Sm_2O_3. V. G.

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S/078/62/007/004/009/016
B110/B101

Conversions of CeO_2, Nd_2O_3, ...

Kuznetsov is thanked for his advice. There are 4 figures and 1 table. The most important English-language references are: M. W. Shafer, R. Roy, J. Amer. Ceram. Soc., 42, 503 (1959). W. Westwood, A. Mayer, Analyst., 73, 275 (1948).

ASSOCIATION: Institut obshchey i neorganicheskoy khimii Akademii nauk SSSR (Institute of General and Inorganic Chemistry of the Academy of Sciences USSR)

SUBMITTED: May 9, 1961

Card 4/4

ACCESSION NR: AT4014066 S/3072/63/000/000/0115/0120

AUTHOR: Gurovich, Ya. I.; Veyler, S. Ya.; Likhtman, V. I.; Voskresenskaya, N. K.

TITLE: Investigation of the lubricating properties of salt mixtures during the pressure heat treatment of metals

SOURCE: Fiz.-khim. zakonomernosti deystviya smazok pri obrabotke metallov davleniyem. Moscow, Izd-vo AN SSSR, 1963, 115-120

TOPIC TAGS: salt mixture, lubricant, lubricating property, heat treatment, metal, metal alloy, salt eutectic, corrosion, wire drawing

ABSTRACT: Since the usual lubricants such as graphite, liquid glass, or mineral oils prove unsatisfactory during hot pressure working of stainless steels, some new lubricants such as salt mixtures have been investigated. The following salt mixtures have been tested: (1) Nitrate-nitrite salts, applied during punching of aluminum alloys. These have proved dangerous because of their explosive properties; (2) Salts such as $MgCl_2$, KCl, NaCl, $ZnCl_2$ and K_2SO_4; (3) Melts containing $ZnCl_2$ and ZnS; (4) Melts such as $PbCl_2$; (5) Mixtures containing salts of Sn; (6) Melts such as Cd-salts, Li-salts, and salt mixtures such as phosphates. Two groups of eutectic mixtures may be distinguished: (a) Salt mixtures forming

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high viscosity liquids at high temperatures that shield the surface from friction and (b) Salt eutectics that, in contact with the hot metal, decompose and form an easily melted metal. The lubrication properties of all mixtures tested were evaluated on the basis of their corrosive action when applied as lubricants for pressure punching of Al, Fe, and Mg alloys. The corrosion tests were carried out by full immersion of the tested metal and by the drop method. It was proven that the corrosive activity of the tested lubricants increased proportionally to their hygroscopic properties.' In some special mixtures of salts, their corrosive action decreased; for example, NaCl and KCl or Li-salts, which appear highly corrosive by themselves, are much less corrosive or even not corrosive when applied as a mixture. The lubrication properties of the fused salts were evaluated by various methods under semitechnological and laboratory conditions. The salt eutectics reduced the pressure necessary for extrusion or punching of low C-steel and Al by 50% as compared with no lubrication. Compared with graphite lubrication, the pressure was the same. The authors also studied the effect of salt lubrication during the process of wire drawing hot aluminum D-16 and steel. It was found that salt mixtures had the best lubrication properties in narrow temperature intervals close to their softening temperature. A plot of wire drawing pressure

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versus temperature with eutectic $ZnCl_2$-KCl applied as a lubricant showed a minimum close to 200C whereas the eutectic temperature appeared lowest near 230C. Orig. art. has: 1 figure and 3 tables.

ASSOCIATION: None

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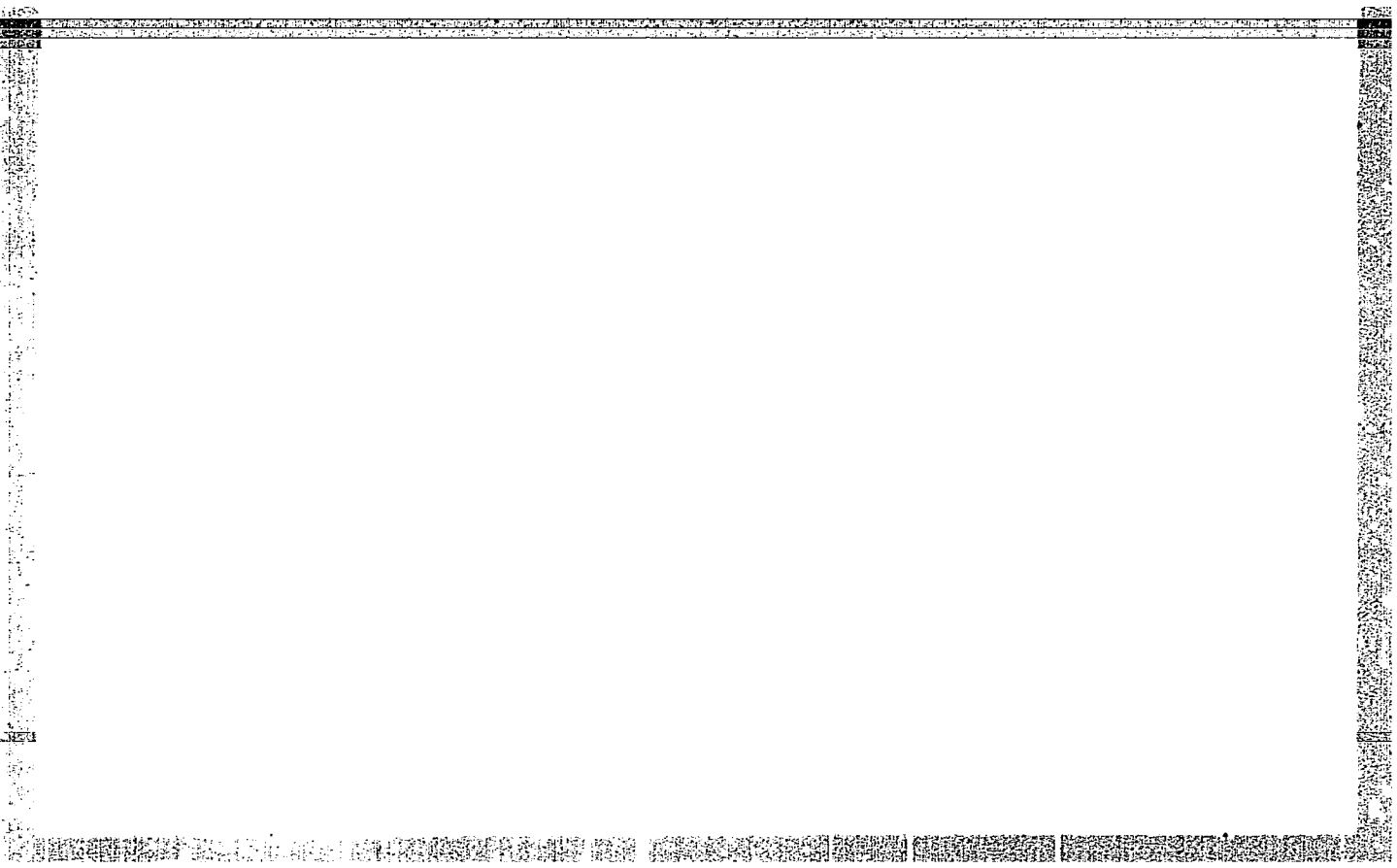
BERUL', S.I.; VOSKRESENSKAYA, N.K.

Reaction of sodium metaphosphate with cerium, neodymium, and samarium oxides. Zhur. neorg. khim. 10 no.5:1110-1120 My '65. (MIRA 18:6)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova AN SSSR.



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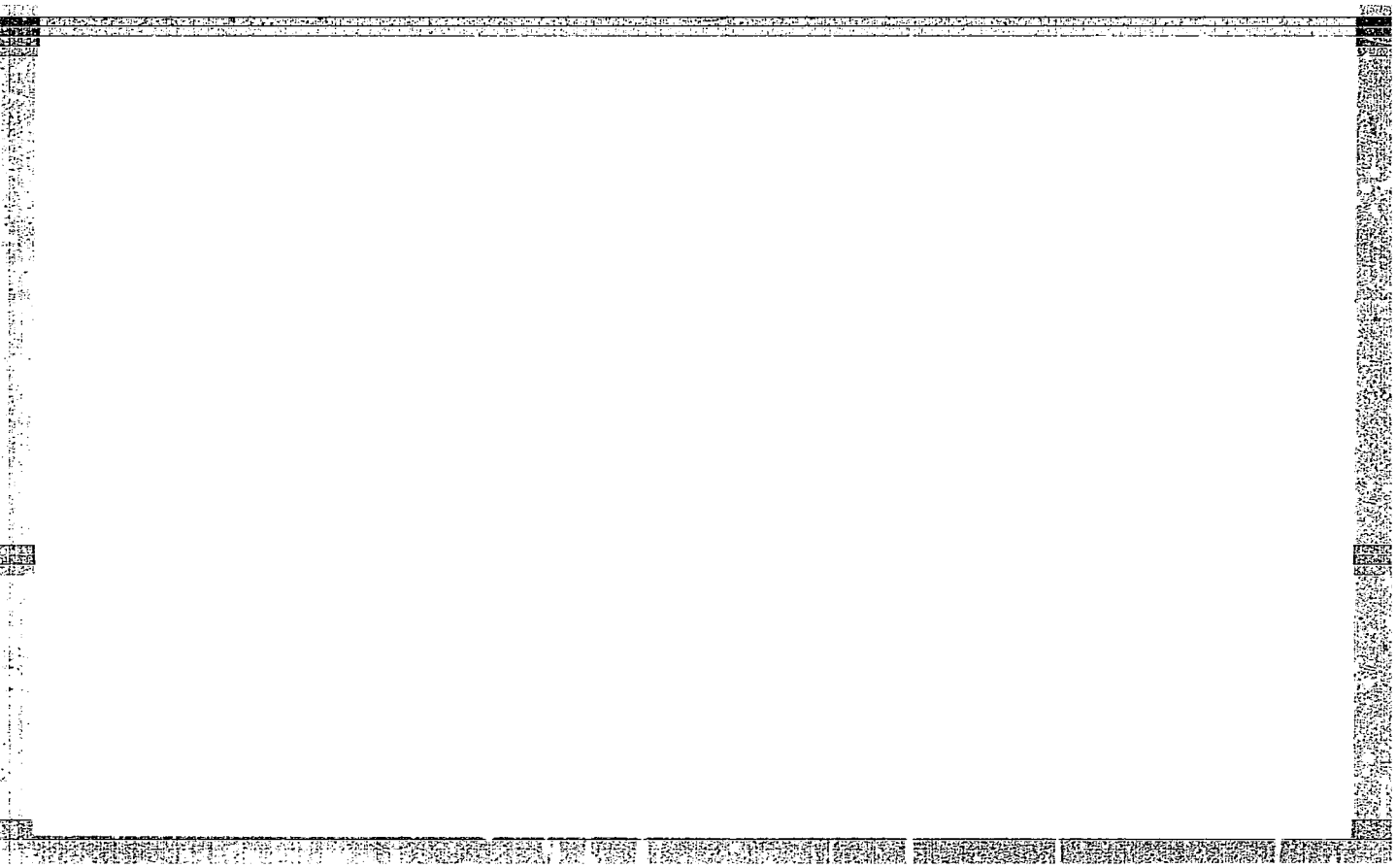

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KRIVOVYAZOV, Ye.L.; SOKOLOVA, I.D.; VOSKRESENSKAYA, N.K.

Surface tension of nitrite-nitrate and nitrate salt mixtures.
Zhur. prikl. khim. 36 no.11:2542-2543 N '63.
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Commemorative dates in January-February, 1963. Review no.37.
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(Anniversaries)

BERUL', S.I.; VOSKRESENSKAYA, N.K.

Interaction of CeO_2, Nd_2O_3, and Sm_2O_3 with molten fluorides. Zhur. neorg. khim. 8 no.6:1431-1436 Je '63. (MIRA 16:6)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova, AN SSSR,

(Rare earths) (Fluorides)

VOSKRESENSKAYA, N.K.

Thermodynamic basis for Kablukov's rule. Zhur.neorg.khim. 8 no.5:1190-1195 My '63. (MIRA 16:5)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova AN SSSR.
(Systems (Chemistry)) (Salts) (Thermodynamics)

L 10650-63
EFF(c)/EWP(q)/EWT(m)/BDS--AFFTC/ASD--Pr-4--WH/JW/JD

ACCESSION NR: AP3001221 S/0078/63/008/006/1431/1436

AUTHOR: Berul', S. I.; Voskresenskaya, N. K. 64 62

TITLE: Reaction of CeO sub 2, Nd sub 2 O sub 3 and Sm sub 2 O sub 3 with fused fluorides 27 27

SOURCE: Zhurnal neorganicheskoy khimii, v. 8, no. 6, 1963, 1431-1436

TOPIC TAGS: fused fluorides, CeO sub 2, Nd sub 2 O sub 3, Sm sub 2 O sub 3, cryolite systems, liquidus

ABSTRACT: It was found through the isometric saturation method that 0.1 weight % Ce or 0.7-0.8 weight % Sm (based on weight of melt) was converted in a molten eutectic mixture of NaF-KF (40 and 60 mol %; 716 degrees) in 4 hours at 1000-1100 degrees. The liquidus of cryolite (Na sub 3 AlF sub 4)-CeO sub 2 and of cryolite - Sm sub 2 O sub 3 systems, obtained visually, was at a temperature higher than was necessary from the heat curves. The eutectics (from diagrams based on heat curves) were 880 degrees, 5.5 mol % CeO sub 2; 963 degrees, 1.2 mol % Sm sub 2 O sub 3. Liquidus of the cryolite - Nd sub 2 O sub 3 system, obtained visually, showed a eutectic at 904 degrees for 12 mol % Nd sub 2 O sub 3. 22 mol % of CeO sub 2 dissolved in a eutectic mixture of cryolite - NaF, lowering fusion temperature to 798 degrees. Roentgenograms of the melts showed only the starting materials; only

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